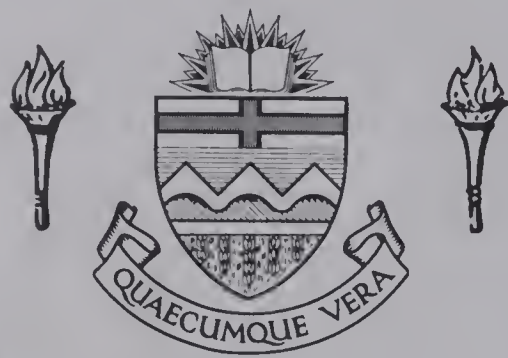


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THE UNIVERSITY OF ALBERTA  
SOCIO-ECONOMIC STATUS AND THE  
MEANING VOCABULARIES OF CHILDREN

by



GEORGE DONALD LABERCANE

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTER OF EDUCATION

DEPARTMENT OF ELEMENTARY EDUCATION

EDMONTON, ALBERTA

OCTOBER, 1968



THESIS  
1968 (F)  
125

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled, "Socio-economic Status and the Meaning Vocabularies of Children" submitted by George Donald Labercane, in partial fulfillment of the requirements for the Degree of Master of Education.



## ABSTRACT

Many variables interact to influence the language development of the young child. Consequently, facility in using language is dependent upon such factors as the socioeconomic environment of the child, the attitude of the home concerning language itself, and the child's mental and chronological age. If the school hopes to provide experiences which are of optimal value to the child, it is of fundamental importance that we come to a fuller understanding of those parameters which influence the child's linguistic potential.

The purpose of this study was to examine the effects of socioeconomic status on the recall and recognition vocabularies of urban, predominantly English-speaking, upper elementary school children. Socioeconomic status was measured by combining the ratings of Blishen's Canadian Occupational Scale and Elley's revision of the Gogh Home Index Scale. The sample consisted of 155 elementary school children in grades four, five and six. The sample population represented varying levels of socioeconomic status.

Scores from the Otis Self-Administering Tests of Mental Ability, Intermediate Examination were used as a measure of mental age. The vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M was administered as a measure of quantitative and recall vocabulary. In this test, the words were defined orally by the children and quantitative scoring was carried out as a measure of the child's minimal meaning vocabulary according to the criteria





established by Terman (1960). The same responses were then further analyzed according to a fivefold classification system established by Feifel and Lorge (1950).

Statistical analysis employing "t" tests was made after the total sample had been divided into an upper socioeconomic status (USES) and a low socioeconomic status (LSES) group on the basis of social class scores. The two groups were then analyzed on the basis of mental age scores, recall, quantitative, and recognition vocabulary scores. In addition, multiple linear regression models were utilized to determine whether the variables of mental age scores, recognition, quantitative, or recall vocabulary scores, presence or absence of either parent in the home, age, grade, and sex contributed significantly to the prediction of recognition and recall scores for the total group.

In comparing the USES group with the LSES group, significant differences were found on all measures in favour of the USES group with the exception of age and sex. For the total group, mental age, quantitative, recall and recognition vocabulary were all found to be significant predictors of one another.

The results point to the fact that lower socioeconomic status children have inferior recall and recognition vocabularies when compared with that of upper socioeconomic status children. Moreover, the relationship between recall and recognition vocabularies appears to be different for each group. Furthermore, while socioeconomic status is a significant predictor of recall



vocabulary, it is not a good predictor of recognition vocabulary. The findings seem to indicate that recognition vocabulary development is relatively unaffected by socioeconomic status and is, therefore, uniformly developed across class lines.

The mean number of responses in the middle three categories (Explanation, Use and Description, Inferior Explanation, etc.) of the qualitative scale for both recall and recognition vocabularies revealed an inverse relationship when the USES and LSES groups were compared. That is to say, the middle three categories of the USES group displayed a gradual increase in the number of responses beginning at the Inferior category and proceeding upward towards Explanation level of responses. However, the exact converse of this phenomenon was discovered for the LSES group wherein an increasing number of responses was found as one moved from the highest to lowest levels of the three middle categories.

The findings of this study point out the necessity of intervention at an early age in order to counteract the effects encountered in the low socioeconomic status home environment. A program of intervention, either of the nature of head start programs or in the form of early childhood education appears warranted if the defects which present themselves in the later grades are to be overcome.



## ACKNOWLEDGEMENTS





## ACKNOWLEDGEMENTS

The writer wishes to acknowledge his indebtedness to all those who have helped to make this study a valuable learning experience.

The guidance and assistance of Dr. Armstrong, Chairman of the thesis committee, given so generously during the planning and preparation of this thesis, are gratefully acknowledged.

Appreciation is also expressed to Dr. W. H. O. Schmidt and Mr. T. J. McBurney, members of the advisory committee for their interest and counsel.

Special thanks are extended to Mr. Daiyo Sawada for his assistance with the statistical procedure.

Thanks are also extended to the Edmonton Public School Board for their cooperation and to the principals, teachers and children in the schools involved in this study.

To Brenda, Robert and Allen I extend my special thanks for their help in the preparation of the data. Appreciation is also extended to Mrs. M. Gogal for the excellent typing in the thesis.

Finally, special appreciation is extended to my wife whose encouragement and persistence assisted greatly towards the completion of this study.





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## CHAPTER I

### I. INTRODUCTION

Kraus (1958) states that words are symbols of reality which permit us to manipulate knowledge concerning reality. Language allows us to speak of things not in sight and to project into the future. Language also allows us to hold on to reality, to fix it in experience, and to make it available when needed (pp.109-110).

In this respect, the young child, "surrounded by a sea of words, sequentially and selectively acquires the nouns, verbs, and phrases of his language as well as the gestures, intonations and dialect of those with whom he interacts" (John and Goldstein, 1964, p. 265). The young child uses language to conceptualize new meanings, to exchange ideas, to test hypotheses, as well as to facilitate communication with those around him. Furthermore, the effective use of language has a direct bearing on the intellectual capabilities of the growing child. Moreover, facility in the use of language is essential for success in school and in society at large. It is imperative, therefore, that we understand more fully the processes involved in the child's acquisition of language.

### II. THE PROBLEM

The development of concepts evidently arises out of the ordering of experiences in which the young child's perceptions of the world about him are





gradually internalized through a process of differentiation, categorization, and abstraction. The resultant effect of this process is the formation of concepts. Furthermore, the acquisition of an ever increasing store of concepts permits the young child to compare and contrast those concepts at his disposal thereby setting in motion a whole new process of ordering in which concepts may be placed in new classes according to their respective genres (Carrol, 1964; John and Goldstein, 1964). In other words, as the young child learns language, he learns socially reinforced names for the objects, sensations, sounds, and feelings around him. In turn, he is able to classify and categorize these experiences into further categories of experience.

Words, the graphic and oral representations of conceptualized experience, provide the mediating link wherein conceptual development may be enhanced and extended. Russell (1956) states that a concept is not a word but that, "a concept involves a word or phrase, or some other sign or symbol..." (p. 118). It thus seems evident that a close connection exists between the child's store of concepts and his functioning vocabulary. In many cases they are composed of the same items and it is the spoken or written word which enables the young child to extend his knowledge of reality beyond the bounds of his present store of conceptual understandings.

Vinacke (1952) regards a concept as "a kind of selective system in the mental organization of a person which links previous experience and current states with stimulus objects" (p. 100). Concepts are usually given a verbal





name, the name for example of a stimulus object. Although a concept is not a word, the ideas may be represented in words or terms which pinpoint the major characteristic of the concept itself.

Church (1961) sees concept formation as consisting of an upward and downward categorization of reality. Downward categorization, involving discrimination, generalization and the noting of similarities among things that were never experienced as equivalent, is seen as a process that takes place at the perceptual level. On the other hand, the upward categorization of perceptually dissimilar things is necessarily a symbolic operation. In other words, there is downward categorization when equivalent objects or attributes are selected and classified on the basis of similarity whereas true generalization takes place in which there is the formulation of a general principle abstracted from a number of particular events or instances.

Studies which have examined children's concepts appear to be of two different but general types. The first type concerns itself with a knowledge of specific concepts; concepts which deal with time, space, self, mathematical concepts, scientific concepts, and social concepts, among others. Russell (1954, 1956, 1960), Vinacke (1952), and Thompson (1952), along with others have summarized the research in this area.

The second type of study attempts to examine the various stages in the development of concepts in children. Carroll (1964), Goldstein and Scheerer (1941), Harvey, Hunt, and Schroder (1961), Welch and Long (1940), Piaget



(1958, 1960, 1963), Werner (1957), and others have elaborated theories describing the stages through which children pass in the acquisition of concepts. Generally, investigators agree that the development of concepts proceeds towards abstractness on a concrete-abstract continuum.

Russell's (1954) survey of studies in vocabulary stated that early efforts in vocabulary testing were primarily concerned with size of vocabulary. However, the implementation of more sophisticated sampling and testing techniques indicates that discussions of meaning have tended to move in the direction of operational formulations and terminologies that associate language behavior more closely with other human behavior. Studies by Chambers (1904), Kirkpatrick (1938), Binet and Simon (1916), Terman (1916), Green (1931), Feifel and Lorge (1950), and Grant (1965) represent a trend towards analyzing the qualitative differences in the vocabulary responses of children. Basically, the foregoing studies attempted to analyze vocabulary in terms of unaided recall.

Many factors play an important role in the development of concepts and, subsequently, the formation of word meanings. Basically, there is the role that experience plays in the young child's life. The interaction of the child with his environment is basic to the development of a system of concepts for, "it serves as an experiential filter through which impinging events are screened, gauged, and evaluated; a process that determines in large part what responses can and will occur" (Harvey, Hunt and Schroder, 1961, pp. 2-3).





In this respect, social class factors such as home environment, education and income of the parents appear to play dominant roles in the development of language on the part of young children.

Other related social class factors contribute to the success or failure of the young child in developing adequate language skills to cope with the demands of the school setting. Maternal deprivation in early childhood, for example, appears to be an important factor which affects personality and the child's ability to think abstractly (Patton and Gardner, 1963).

The young child's intelligence is another factor which is affected by his socioeconomic status. Intelligence test scores of deprived children have been found to be lower on the average than those of children from more stimulating environments.

Accompanying all of the foregoing factors are such determinants as sex, age and grade. The role that sex plays in language has not been clearly demonstrated although some studies indicate that girls have superior language skills to boys (McCarthy, 1954). More recent studies, however, do not bear out McCarthy's findings (Anastasi and D'Angelo, 1952; Loban, 1963; Labensohn, 1967). Age and grade level, factors which are maturational in nature, appear to be subject to what Deutsch (1965a) refers to as a "cumulative deficit phenomenon," (p. 80). Children from lower class homes begin school with certain inadequacies in language development, perceptual skills, attentional skills, and motivation. The end result is that, by eighth grade or sooner, these children



are about three years behind grade norms in reading and arithmetic as well as in other subjects.

In sum, vocabulary development, like concept development, is dependent upon the richness and variety of experiences available to the young child through his cultural context. The work of Deutsch (1962, 1963, 1964, 1965a, 1965b), Bernstein (1960, 1961, 1962, 1964, 1965), Hess and Shipman (1965), and others, have indicated the role that social class plays in the development of intelligence, vocabulary and reading.

Within the cultural context of the young child, parents play the major role in providing a language model which the child can imitate and use as a guide for developing his own linguistic style. In many lower class homes, however, the language model provided by the parents is inferior and generally unsuited for educational purposes (Bernstein, 1965).

Another issue affecting language development concerns the attitude of many lower class homes toward language. Reissman (1962) has pointed out that many lower class people tend to be 'doers' rather than 'talkers.' Here, the emphasis is upon the acting out of problem situations in place of the middle-class method of talking out problem situations. Black (1965) has stated that this attitude is reflected in the language patterns of the lower classes in which fewer words are used by kindergarten children and these are generally accompanied by more immature sentence structures.





These and other related factors, point to the need for a detailed qualitative analysis of vocabulary, the premise being that vocabulary development approximates or closely coincides with concept development.

In this respect, it is important that we examine vocabulary responses at many different levels and from many different aspects. Russell (1954) and Kruglov (1953) conducted research in the area of qualitative responses in the recognitive situation. Their findings revealed a definite decrease in choice of concrete definitions and an increase in functional and abstract choices at higher grade levels. Russell and Saadeh (1962), in exploring children's vocabulary responses in terms of categorical definitions, concluded:

Children's vocabulary abilities should probably be scored for depth of meanings and level of definition selected as "best," as well as by purely quantitative measures (p. 173)

Hence, it is important that studies of vocabulary should evaluate the qualitative aspects and differences in the vocabulary of children. Moreover, the number of words the child uses and the number of words to which he attaches minimal meaning should become objectives of research in this area.

### III. PURPOSE OF THE STUDY

The purpose of the study was to examine the effects of socioeconomic status on the recognition and recall vocabularies of upper elementary school children. The sample consisted of pupils selected from areas presumed to be representative of differing levels of socioeconomic status.



#### IV. HYPOTHESES

1. There is no significant difference between the two groups set up according to socioeconomic levels on the following variables:
  - a) Mental Age scores as measured by the Otis Self-Administering Tests of Mental Ability, Intermediate Form.
  - b) Recall vocabulary scores as measured by the vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M.
  - c) Recognition vocabulary scores as measured by a multiple-choice form of the vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M.
  - d) Quantitative vocabulary scores as measured by the vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M.
  - e) The number of responses in each of the categories of the Feifel scale for Recall vocabulary.
  - f) The number of responses in each of the categories of the Feifel scale for Recognition vocabulary.
2. In the presence of the other variables, there is no significant contribution to the variance of scores on the recall vocabulary test due to the variance of scores on:
  - a) Socioeconomic status as defined by the Blishen scale.



- b) Grade .
  - c) Recognition vocabulary score .
  - d) Chronological age .
  - e) Mental age .
  - f) Sex .
  - g) Presence or absence of either parent in the home .
3. In the presence of the other variables, there is no significant contribution to the variance of scores on the quantitative vocabulary test due to the variance of scores on:
- a) Socioeconomic status as defined by the Blishen scale .
  - b) Grade .
  - c) Recognition vocabulary score .
  - d) Chronological age .
  - e) Mental age .
  - f) Sex .
  - g) Presence or absence of either parent in the home .
4. In the presence of the other variables, there is no significant contribution to the variance of scores on the recognition vocabulary test due to the variance of scores on:
- a) Socioeconomic status as defined by the Blishen scale .
  - b) Grade .
  - c) Recall vocabulary score .





- d) Chronological age .
- e) Mental age .
- f) Sex .
- g) Presence or absence of either parent in the home .

## V. DEFINITIONS

For the purpose of this study the meanings attached to certain terms is as follows:

1. Quantitative Vocabulary score - the raw score obtained by measuring vocabulary according to the directions given in the manual of the vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M. This test was used as a measure of the minimal meanings supplied for the words in the test .
2. Recall Vocabulary - involves the assessment of a particular child's knowledge of words which he understands or the meanings which he knows . In this case , it is the meaning vocabulary measured by presenting orally the forty-five words of the vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M. It is important to remember that this test measures the recall of word meanings as such . A score is obtained for this test by assigning a numerical value to each category of the Feifel scale and multiplying the number of responses in each category by the numerical value for that category, for each child .





3. Recognition Vocabulary - these are words which a person can recognize in context. In this study, it is the meaning vocabulary measured by way of a multiple-choice vocabulary test of ten words taken from the vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M. Scoring is carried out utilizing the same procedures as those used for recall vocabulary. As well, the test attempts to measure the meanings of words as they are recognized by the student.
4. Socioeconomic status - is the level indicative of both the social and the economic achievement of an individual or group. For purposes of this study it represents a numerical value assigned to each subject, calculated by combining the ratings of the father's occupation according to the Canadian Occupational Scale of Blishen (1961) and the ratings derived from the Gogh Home Index Scale as revised by Elley (1961).
5. Mental Age - the level of a person's mental ability expressed in terms of norms based on the median mental age of a group of persons having the same chronological age. In this study the person's mental age was derived from the score obtained on the Otis Self-Administering Tests of Mental Ability, Intermediate Form.



## VI. DESIGN OF THE STUDY

In May, 1966, a group of 155 children was selected from grades four, five and six of the Edmonton Public School System. The children were selected from areas in the city which best represented differing levels of socioeconomic status.

The following tests were administered by the writer to each child individually:

1. Recall vocabulary was measured by presenting the forty-five words of the Stanford-Binet Intelligence Scale, Form L-M orally and asking the child to define the words. Quantitative scoring of responses was first completed once the responses had been taped by the writer and later transcribed. These responses were then analyzed according to a five-fold classification system. Responses were weighted so that a recall score was available for each child.
2. The Gogh Home Index Scale was administered orally to each child as a measure of socioeconomic status. The score obtained was then combined with the score obtained from the Canadian Occupational Scale to arrive at a socioeconomic status score for each child.

The following tests were administered to the sample population in the form of group tests:



1. The Otis Self-Administering Tests of Mental Ability, Intermediate Form, as a measure of IQ.
2. Recognition vocabulary was measured by presenting a multiple-choice test of ten words taken from the Stanford-Binet Intelligence Scale, Form L-M and adapted for use as a group test (Kruglov, 1953). The responses were then analyzed according to the same principles as those used for assessing recall vocabulary.

The following data were collected from the cumulative record cards of each individual:

1. Sex of the child.
2. Date of birth.

Statistical analysis, utilizing the "t" test, was made to compare both groups. Multiple linear regression analysis was also used to assess the contribution of each of the variables to the prediction of meaning recognition and meaning recall vocabulary scores for the total sample.

## VII. LIMITATIONS

The study possesses the following limitations:

1. All subjects were urban and spoke English as their main language. Those who spoke a language other than English were excluded in an attempt to reduce the effects of a second language on test results.







2. The size of the group was limited by the amount of time required for individual testing of subjects. Definite time limits were established during which testing could take place and the examiner was required to operate within these time limits.
3. Responses were given in a testing situation and are, therefore, limited to a particular context. No attempt was made to test the pupils in the classroom or in the home.
4. Limitations exist in terms of defining words orally. The necessity to provide a meaningful verbal definition of a word is an involved task and the child is limited by his ability to express himself orally.
5. The measurement of IQ was carried out on the basis of a group test. As a result, scores obtained in this manner were found to be different from tests given individually.

## VIII. SIGNIFICANCE OF THE STUDY

The fact that lower class children do not perform well in the traditional school setting poses special problems for educators. It is to be hoped that a study of this nature will provide insight into specific nature of some of the problems experienced by the culturally disadvantaged with respect to language. In addition, an analysis of the vocabulary responses of upper elementary school children may shed some light on the "cumulative deficit phenomenon" alluded



to in the work of Deutsch (1965). Finally, it is to be hoped that the results will provide a further reason for the establishment of programs designed to aid the educational ills of the disadvantaged.

## IX. ORGANIZATION OF THE REPORT

This chapter has attempted to introduce the problem, provide a theoretical background to the study, describe the purpose, limitations, significance, and design of the study, define the terms and state the hypotheses. The remainder of the study is divided into the following areas:

- Chapter II.     Related research and literature
- Chapter III.    Design of the study
- Chapter IV.     Findings
- Chapter V.      Summary, conclusions, and implications



## CHAPTER II .

### REVIEW OF THE RELATED LITERATURE

The following chapter reviews the literature related to qualitative studies of vocabulary and to the many factors which influence language development . A brief summary concludes the chapter .

#### I. QUALITATIVE STUDIES OF VOCABULARY

One of the first studies of the growth in the general meaning of vocabulary words was that carried out by Chambers (1904) . His study concerned itself with the examination of 2,922 children and young people ranging in age from five to twenty-seven years . Definitions were sought of such words as , "monk , peasant , emperor , nation , armour , and school ." These definitions were then analyzed under the following headings: (1) no answer; (2) wholly wrong answer; (3) vaguely right answer; (4) correct answer . The results of his research led Chambers to declare the most common source of error to be "euphonic analogy , " e.g. "monkey" in response to the word "monk ."

Kirkpatrick (1938) declared that growth with age occurred not only in the vocabulary range but in the character of the definition attached to the words .

During the same period , Pohlman (1907) discovered that the definitions of older children showed a movement away from the defining of words in





terms of action contexts towards definition in terms of relatively context-free thing-names.

Binet and Simon (1916), in examining the development of intelligence in children, discovered that children of age six defined words in terms of "use" (i.e., what people do with it, what it does, etc.). Moreover, their findings revealed that it was not until nine years of age that the majority of definitions given were "superior to use."

Terman (1916), like Binet and Simon, found that children of six, as a rule, defined objects in terms of use. Definitions which utilized "description" (i.e. telling what a substance is made of, etc.) and which stated the "class" to which it belonged were grouped together as superior to use. Moreover, it was reported that such definitions were not used spontaneously by the majority of children before the age of eight.

Dolch (1927) discovered that among the types of words causing the most difficulty were those that acted as symbols for abstractions or generalizations, e. g. "advantage."

Marx (1928) conducted a qualitative study involving the first fifty words of the 1916 Stanford-Binet. The study was carried out upon a group of children and adults. The following categories were employed in classifying responses for the word "skill": (1) synonym or synonym type - "ability," "proficiency,"; (2) interpretation - "able to do things well"; (3) repetition in appropriate context - "play ball with skill"; (4) definition by example - "shoot a bow and arrow





straight"; (5) poor explanation - "to do your best"; (6) special aspect isolated - "strength"; (7) failures - "the way you skill." Results of the study point to the fact that the highest quality types of definitions in relation to chronological age were those of the synonym and genus category. Definitions at the lowest end of the scale were those which employed illustrations or example, use, and the repetition type of response.

Green (1931) was also concerned with the qualitative aspects of vocabulary. She examined the responses of 718 school children and 110 adults to fifty vocabulary words (45 of which later became the Form L vocabulary Test of the 1937 Revised Stanford-Binet). A method of weighting scores for each word in accordance with the relation between the quality of response and the developmental level of the subject was established by Green. Although Green employed a somewhat different system of classification to that of Marx, the results followed a similar trend.

Green found that types of definitions having lower median age scores than "use" were "repetition in context and demonstration." She also noticed that young children perceived words as concrete ideas. That is to say, they tended to define "orange" as "you eat it" to the more abstract definition of "fruit." Moreover, Green found that the "unmodified synonym" was most frequently employed by older children and adults to express the meaning of a word.

A study by Gray and Holmes (1938) stated that the character of the definitions attached to words changed notably from the lower to the higher grades,



and that the period from nine to 15 years of age was particularly productive in the acquisition of different types of meaning.

Watts (1947), discovered that the words and quality of the definition could be arranged in a hierarchy of ascending levels of increasing generality, with those serving "as labels for concrete particular things at the lowest level, and those having reference to the most universal and abstract concepts at the highest level" (p. 53).

Feifel and Lorge (1950) carried out a qualitative analysis of verbatim responses given by 900 children between the ages of six and fourteen. The Form L, Stanford-Binet Vocabulary Test was utilized in examining the childrens' responses. The following categories represented the criteria upon which the analysis was based: (1) synonym; (2) use, description, use and description; (3) explanation; (4) demonstration, repetition, illustration, and inferior explanation; (5) error. Using this qualitative category system as a basis for analyzing responses, they discovered that the younger children more often gave use and description types of definition, along with illustration, inferior explanation, demonstration, and repetition types of answers, whereas the older children tended to select synonym types of definitions.

Reichard, Schneider and Rapaport (1944) made a study of concept formation in children. They employed the Goldstein-Weigel Color Sorting Test as an instrument for analyzing the formation of concepts in children. Three levels in the forming of concepts were hypothesized: (1) the concretistic; (2) the





functional; and (3) the conceptual. Gertstein (1949), in turn, hypothesized that these same conceptual categories could be utilized in classifying levels of abstraction.

Grant (1965) analyzed the oral responses of good and poor readers. Her main test instrument was the vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M. She also employed the Feifel fivefold system of classifying vocabulary items and discovered significant differences in terms of abstract verbal behavior between matched pairs of good and poor readers, with the good readers giving a significantly greater number of abstract responses.

Carson and Rabin (1960) carried out a study of verbal comprehension and communication involving both Negro and white children. The Full Range Picture Vocabulary Test was employed as a measure of comprehension while the childrens' communication vocabulary was analyzed through utilizing the items defined by the children in the Full Range Picture Vocabulary Test. A scale previously employed by Rabin, King and Ehrmann (1955) was adapted to analyze the definitions. The categories developed were made up of the following levels of abstraction: (1) categorization and synonym; (2) essential description; (3) essential function; (4) example; (5) vague description and vague function; (6) error; (7) don't know.

Three groups of thirty were chosen for testing. One of the groups comprised children of Northern white extraction, another group consisted of Northern Negro children while the third group was made up of Southern Negro children.





All three groups of children were matched for age, sex, grade placement, and level of verbal comprehension.

Test results revealed that the white children were superior to the Negro children, and that the Northern Negro children were superior to the Southern Negro children on the two measures of vocabulary requiring verbal communication.

Labensohn (1967) examined the effects of socioeconomic status on the recognition and recall vocabularies of urban, predominantly English-speaking, grade one children. The Peabody Picture Vocabulary Test was used as a measure of both recognition and recall vocabularies while socioeconomic status was defined in terms of the Blishen scale. Significant differences were revealed between the groups of all measures. In each case, test results appeared to favor heavily the upper socioeconomic group.

## II. FACTORS INFLUENCING LANGUAGE DEVELOPMENT

Socioeconomic Status. Numerous labels have arisen through attempts by many to arrive at an all-embracing definition of the lower classes: culturally deprived, low socioeconomic group, economically restricted, disadvantaged, and so on. It also seems quite evident that no child has really ever had "an optimally fostering environment; one within which the intellectual development of each individual has been appropriately stimulated so that the maximal developmental ceiling has been reached at each level" (M. Deutsch, 1965, p. 78).



Nevertheless, the absence of such an environment, coupled with the presence of varying examples of the converse of such an environment, makes it possible to examine the parameters which interact with environment and language development. As such, it is the purpose of this section to examine the language areas that have been most influenced by unfavourable environmental circumstances.

Basil Bernstein (1958, 1960, 1961a, 1961b, 1962a, 1962b, 1964a, 1964b, 1964c, 1965) has delineated some of the existing relationships which hold between social class and the type of language possessed by children at varying socioeconomic levels. In this respect his work is unique. More particularly, he has pointed out that the lower class child tends to use an informal or public language (a restricted code) in contrast to the middle class child's use of a more formal language (an elaborated code) with its emphasis on the relating of concepts. The characteristics of a "public" language or restricted code (the major speech form of the lower working class) are as follows:

1. Short grammatically simple, often unfinished sentences with a poor syntactical form.
2. Simple and repetitive use of conjunctions ('so', 'then', 'and', 'because').
3. Little use of sub-ordinate clauses to break down the initial categories of the dominant subject.
4. Inability to hold a subject through a speech sequence, so that a dislocated informational context is facilitated.



5. Rigid and limited use of adjectives and adverbs.
6. Infrequent use of impersonal pronouns as subjects of conditional clauses or sentences.
7. Frequent use of statements where the reason and conclusion are confounded to produce a categorical statement.
8. A large number of statements/phrases which signal a requirement for the previous speech sequence to be reinforced: "Wouldn't it? You see? You know?" etc. This process is termed "sympathetic circularity."
9. Individual selection from a group of idiomatic phrases or sequences will frequently occur.
10. The individual qualification is implicit in the sentence organization: it is a language of implicit meaning.

Bernstein's findings appear to indicate that most middleclass children possess both linguistic codes whereas lower-class children are confined to the use of a public language or restricted code. Support for Bernstein's thesis has been found in the research studies of Black (1966), Dale (1965), Deutsch (1962, 1963, 1964, 1965a, 1965b), and Mukerji (1966).

According to Bernstein, language tends to condition what the child learns, thus setting limits to his capacity for learning in the future. Restricted codes are nonspecific clichés, statements, or observations about events, made in general terms that can be readily observed. By its very nature, this mode sets limits on the range and detail of concepts and information involved.







Furthermore, the resultant effects of early language experiences upon the child have a bearing not only on the communication modes and cognitive structures; they also establish potential patterns of relationships with the external world. Hence, Bernstein's view of language as social behaviour proposes that language is used by the participants of a social network to elaborate and express interpersonal relationships thereby shaping and determining these relationships. "The ability to switch codes controls the ability to switch roles" (p. 157).

Edwards (1965) has pointed that culturally deprived children display weaknesses in auditory discrimination as do Bloom, Davis and Hess (1965), and Spodek (1966).

Black (1966) states that disadvantaged children learn less from what they hear than do middle class children. He lists, as contributing factors, the presence of crowded living areas accompanied by the noise of televisions or radios, and the noisy neighbors.

Cynthia Deutsch (1963) believes that lower class children, who live in very noisy environments, do not develop the requisite auditory discrimination abilities necessary for successful reading early in their school years.

Frazier (1964) has identified three kinds of language peculiar to the underprivileged - each with its own etiology, characteristics and possible remediation:



1. True verbal destitution.
2. Full but non-standard language development.
3. Undeveloped language because of unconceptualized experience.

In true verbal destitution, the child may have less language than other children, as his opportunities for learning and using language may have been very meagre. On the other hand, the child who possesses full but non-standard language can be understood by his home and neighborhood companions, but does not possess "the language of the school." In the final category, the child who has under-developed language because he does not have a fund of conceptualized experience, is one who cannot verbalize certain meanings which the school values.

Nevertheless, the language of culturally disadvantaged children does possess certain definite and positive characteristic traits which are often overlooked when measured by conventional standards. Riessman (1966, p. 79) refers to this verbal potential of the disadvantaged as their "hidden verbal ability." Deutsch (In Riessman, 1962) along with Robison and Mukerji (1965) reported that disadvantaged children displayed greater verbal fluency in spontaneous unstructured situations than during formal interview sessions with researchers.

Bernstein (1961a) contends that the public language of the working class individual psychologically unites the speaker of this language to his kin and, on a sociological level, to his group. Consequently, it should not be undervalued; rather, the aesthetic and dignity inherent in the language be preserved. At the same time, the possibilities inherent within the framework of





formal language should be inculcated within the linguistic framework of the public language user.

Recently a number of studies have attempted to examine the effects of family style and parent-child interaction across the various economic levels of society. Hess and Shipman (1965, 1966) have carried out a number of comprehensive studies involving mother-child interaction and its resultant effects upon cognitive development.

In a recent project, Hess and Shipman (1965) selected 160 Negro mothers and their four year-old children from four different socioeconomic levels. These levels ranged from college-educated professional, executive, and managerial occupational levels to unskilled or semi-skilled occupational levels, with fathers absent and family supported by public assistance.

The mothers were brought to the university for testing in an interaction session between mother and child in which the mother was taught three simple tasks, then asked to teach these tasks to the child. The data indicate the presence of marked social class differences in the ability of the children to learn from their mothers in a teaching situation. Middle-class children ranked above lower-class children in performance on sorting tasks, particularly in offering verbal explanations as to the basis for sorting. Over 60 per cent of middle-class children placed the objects correctly on all tasks whereas the performance of children from other groups ranged as low as 30 per cent in terms of correct responses. In essence, the meaning of deprivation is as Hess and Shipman state:





A deprivation of meaning - a cognitive environment in which behaviour is controlled by status rules, rather than by attention to the individual characteristics of a specific situation . . .

(Hess and Shipman, p. 285)

Noel (1953) compared the quality of language used by children with the quality and type found in their homes. The test he employed consisted of two hundred pairs of sentences with one incorrect sentence in each pair. Eight different categories of usage were employed on a sample consisting of 124 children and their parents. A questionnaire was administered to determine the number of oral language situations they became involved in in the course of parent-child interaction. A direct, positive relationship was found to exist between the number of errors made by each child and his parents. Children tended to employ the language usage of their parents. However, little or no relationship was discovered with respect to the use of prepositions, agreement between subject and verb, and verbs which were often confused, in terms of parent-child interaction. Generally, the occupation of the father did not affect the quality of the language usage of the child; not even when the IQ factor was held constant.

Pavenstedt (1965) studied the environment of children from upper-lower class homes in contrast to children from very low-lower class families. Thirty families in each group were examined and the findings were that normal personality development, even without intellectual stimulation, allows children from stable upper-lower class homes to adjust and learn in the first grade. On the other hand, children from the very low-lower class families displayed retardation



and deviation in personality development; factors which interfered seriously with learning.

Reports on sections of a four-year "Verbal Survey" are now being published by the Institute for Developmental Studies, New York Medical College. This study represents one of the most comprehensive surveys on the language and cognitive development of disadvantaged children to date with a core sample of 292 children and an extended population of 2,500 children of various racial and social class groupings involved.

Martin Deutsch (1965a), in his studies at the Institute, has found that lower class children at the grade one level exhibited inferior performance on all IQ and verbal as well as language measures when compared with their middle-class counterparts. More significantly, Deutsch and his associates discovered that lower class children were subject to what was termed a "cumulative deficit phenomenon (p. 80)." This phenomenon displays an increasing debility in all verbal areas on the part of the lower class child; a debility which becomes increasingly marked as the child progresses from the primary to the upper elementary level of his schooling.

Another section of the Verbal Survey has been described by John (1963). In this section, John tested Negro children of different social classes on the Peabody Picture Vocabulary Test in order to assess the quality of receptive vocabulary while the WISC vocabulary subtest was given to evaluate the level of expressive vocabulary of these children. The Verbal Identification Test, a





test devised by John, was also administered to the children. This test consists of stimulus cards which depict simple events or groups of objects. The children were asked to enumerate what they saw on the cards and to offer an appropriate title for each card. Findings revealed that middle class Negro children were superior to the lower class children in possessing a larger vocabulary (WISC), a higher non-verbal IQ (Lorge-Thorndike), a superior ability in producing a "best fit" response to the Verbal Identification Test, and in their conceptual sorting and verbalizing behavior.

John and Goldstein (1964) have described a section of the Verbal Survey involving a study of four year old middle and lower class Negro children. The Peabody Picture Vocabulary Test was administered and clusters of words were identified which posed difficulties for lower class children. Among the words which presented the greatest difficulty were the following:

1. Action words, e.g., tying, picking.
2. Words with rural origins, e.g., leaf, bee, bush.
3. Words whose referents tended to be rare in low income homes.

Another test which was developed by John and labelled the Concept Sorting Test was also given to these same children. The test consists of simple drawings which may be grouped into functional pairs (e.g. sailor and boat) or into logically consistent piles (e.g., animals). The children were shown the drawings and asked to give a verbal rationale for each sort. The findings revealed that middle class Negro children tended to produce category labels more





frequently than lower class children whereas the lower class child tended to focus on non-essential attributes.

Bernstein (1960) tested a group of sixty-one lower class and forty-five upper class subjects (boys) between the ages of fifteen and eighteen.

Raven's Progressive Matrices and the Mill Hill Vocabulary Scale were administered to discover level of intellectual attainment and concept development.

However, the basic purpose of the study was to determine if the two speech modes hypothesized by Bernstein were related to the different status groups. Furthermore, an attempt was made to determine whether the orientation of the two linguistic structures is independent of non-verbal IQ test scores. The prediction was made that for the working class group the language scores would be severely depressed in relation to the scores in the higher ranges of non-verbal IQ measures.

Results of the testing revealed a different relationship existing between the non-verbal and verbal measures of IQ for the two social groups. For the working class group, language scores were depressed in relation to the scores at the higher ranges of the matrices whereas no such relationship was indicated for the high group.

Loban's (1962, 1963) longitudinal study of the language of school age children consisted of a sample of 338 kindergarten children taken from a stratified sample in the Oakland, California area. The study revealed that, for Southern Negro children, attempts to use the verb "to be" proved twelve times as difficult for these children as for a similar group of Northern white children.



Moreover, these children also manifested an inability to correctly identify and use present and past tenses.

Templin (1957) examined the recognition vocabularies of children ranging from three to eight years of age. Children aged three to five were given the Full Range Picture Vocabulary Test while the Seashore-Eckerson English Vocabulary Test was administered to children who ranged from six to eight years of age. Differences were found to exist between the mean score for all three to five year old, upper and lower class children; differences which were found to be significant at the .05 level, with the upper class children scoring higher at each level. When the entire age group of all the subjects was combined, the performance of the upper class group proved to be consistently higher than that of the lower class group, with nearly all measures indicating statistically significant differences.

Pringle's (1959) study involved a comparative analysis of the effects of early deprivation on speech development upon two groups of pre-school children. Each group consisted of eighteen children with the one group being composed of children from a regular family setting whereas the second group was drawn from children who were in residential care. Both groups were matched for age, sex and IQ. Essentially, Pringle's study was an attempt to analyze two important facets of speech: the ability of children to understand and express themselves in simple sentences in response to test items, and the spontaneous, un-directed verbal expression elicited by children during free play periods.





Quantitative comparisons revealed that the group of children living with their parents proved superior to the students who were under residential care. The family-oriented group also displayed more co-operation in play activities and employed speech to a greater extent in social contacts among peers as well as in fantasy play.

Thomas (1962) analyzed the oral language displayed by fifty Negro and white lower class urban kindergarten children. His findings revealed that these children were deficient in the amount, maturity, and quality of oral expression necessary to ensure effective functioning at higher grade levels. Thomas discovered that twenty to fifty per cent of the words used by the subjects tended to differ from text and teacher word lists for primary grades. This, in turn, points out that a deficit gap exists between vocabulary used inside and outside the school.

Carson and Rabin (1960) examined both verbal comprehension and communication in Negro and white children. The Full Range Picture Vocabulary Test was utilized as a measure of comprehension and the WISC vocabulary served to measure verbal communication, along with the words of the Full Range Picture Vocabulary Test. The words were presented orally with the subjects supplying the definitions. King and Ehrman's qualitative scale was adapted as a device for qualitatively analyzing the definitions. Carson and Rabin concluded that differences between Negroes and whites on conventional IQ tests and especially on vocabulary subtests may be primarily due to failure in verbal communication rather than in comprehension.

Labensohn (1967) studied the effects of socioeconomic status on the recognition and recall vocabularies of urban, predominantly English-speaking





grade one children. Measures of socioeconomic status were obtained by combining the ratings of Blishen's Canadian Occupational Scale and Elley's revision of the Gogh Home Index Scale. Two groups of twenty-five children each were examined, with one group consisting of upper class children and the other group, of lower class children.

IQ was measured by means of the Columbia Mental Maturity Scale and the Detroit Beginning First Grade Intelligence Test. The Peabody Picture Vocabulary Test was administered to measure recognition vocabulary and the first fifty words of the Peabody Picture Vocabulary Test were defined orally by the children. These words were then analyzed qualitatively on the basis of a five-fold classification system with the results used as a measure of the child's recall vocabulary.

In all measures, significant differences were found to exist, all in favor of the upper socioeconomic group. Test results indicated that children from lower socioeconomic levels have poorer recognition and recall vocabularies than children from upper socioeconomic levels. Moreover, the relationship between recognition and recall vocabularies is different for each group. Generally, the findings point to the necessity of increased experiences for children of lower socioeconomic levels in order to develop vocabulary skills.

Ryckman (1967) examined fifty middle class and fifty lower class Negro boys in kindergarten. Eight different tests were given to assess specific information processing abilities. An analysis of nineteen variables produced



five reasonably meaningful components, with a general language ability component being the most significant. When class groups were compared, this component discriminated most significantly between the groups. All eighteen cognitive variables discriminated between the socioeconomic groups in favor of the middle class boys ( $p > .01$ ). Hence, the major differentiating characteristic between the middle and the lower classes appears to be general language ability.

Variety and Quality of Early Childhood Experiences. Literature relating to the field of child development lends weight to the hypothesis that the preschool years constitute a "critical period" of life in which environmental experience and psychological development interact to form personality and to determine future potential. As the young child comes to grips with his environment, his self-concept begins to form, the content and pattern of his language develops, skills in social processes evolve, attitudes toward learning take shape, and concepts which enable him to interpret and organize his environment begins to form.

Gordon (1965) describes the home environment of the disadvantaged as being "noisy, disorganized, overcrowded, and austere." Many of the cultural artifacts closely related to the development of readiness for school were found wanting. These included such items as: books, art work, a variety of toys, and self-instructional equipment.

Crowding appears to be a major feature of the urban depressed area. The noises which commonly arise in overcrowded quarters may interfere with





attention to positive reinforcements that the child might receive. Noise may also cause the child to adopt "a tuning-out" process and to acquire learned inattention. Consequently a child possessing adequate sensory apparatus may fail to develop adequate ability in auditory discrimination. Cynthia Deutsch (1963) suggests that the optimum time for learning in the area of auditory discrimination "must be before the age at which the child enters the first grade."

Poverty tends to reduce the number of "things" that are normally available to the young child and it is impossible to experience, even visually, a wide variety of objects. Hunt (1961) adopts Piaget's (1952) theme of organism-environment interaction by stating that ". . . the more new things a child has seen and the more he has heard, the more things he is interested in seeing and hearing. Moreover, the more variation in reality with which he has coped, the greater his capacity for coping" (Hunt, p. 258).

Language development among the disadvantaged is further impaired by the lack of opportunity to learn through feedback. Communication among members of this level of society tends to be brief and is frequently restricted to situations demanding direction or correction. The child learns to speak the language he hears and adopts the dialect as well as the speech patterns of his environment. A recent study by Labov (1966) found phonological differences related to class in New York city whites.

Bernstein (in Deutsch, 1960) states that, "the lower classes tend to use informal language and mainly to convey concrete needs and immediate





consequences, while the middle-class usage tends to be more formal and to emphasize the relating of concepts." (p. 259).

Deutsch (1964) cites studies which reveal that children from backgrounds that are marginal in terms of economic stability, enter the first grade already behind their middle class peers in a number of skills highly related to scholastic achievement. He proposes a pre-school enrichment program as one means of successfully overcoming the effects of the "cumulative deficit" phenomenon. In so doing, he intimates that there is an opportune time for this intervention period:

. . . at about three or four years of age there is a period which would roughly coincide with the early part of what Piaget calls the "preoperational stage." It is then that the child is going through the later stages of early socialization; that he is required to focus his attention and monitor auditory and visual stimuli and that he learns through language to handle simple symbolic representations . . . (p. 256)

The necessity for specially organized early stimulation, as outlined by Deutsch above, finds support in Bruner's (1961) statement that:

Not only does early deprivation rob the organism of the opportunity of constructing models of the environment, it also prevents the development of efficient strategies for evaluating information (p. 202).

Patton and Gardner (1963) argue that deprivation in early childhood may cause irreparable damage to the structure of the child's personality. As proof, they cite a study by Goldfarb (1945) in which projective tests of



institutionalized children showed: (a) poor abstract thinking; (b) poor control of emotional responses; and (c) lack of drive toward intellectual achievement and social conformity. These, along with other findings by Richmond and Hersher (in Patton and Gardner, 1963) suggest that there are "critical periods in the growth of personality during which certain types of external stimulation are necessary for optimum development, and that without these stimuli, permanent defects may result" (p. 33).

That verbal stimulation of the child is closely related to maternal teaching style is clearly indicated in a recent study by Hess and Shipman (1965). In an extensive project studying Negro pre-school children, numerous characteristics relating to maternal teaching style were assessed including language (Olim, Hess and Shipman, 1965) and teaching style (Jackson, Hess and Shipman, 1965). Maternal teaching style was assessed in an experimental interaction session in the laboratory in which the mother is instructed in a simple task and then instructs her child. Olim, Hess and Shipman (1965) found that maternal language is a better prediction of a child's abstraction score on a sorting task than either the mother's IQ or the child's IQ. Jackson, Hess and Shipman (1965) discovered that certain teaching variables were highly related to the learning outcome of the child in an experimental teaching situation.

Stodolsky (1965) found that the quality of the mother's own language, the mother's use of reinforcement in a teaching situation, and the extent to which





the mother made task-relevant discriminations in teaching a task were highly related to the child's vocabulary level.

Bing (1963) examined the difference in maternal child-rearing practices and mothers' behavior toward their children in relation to differences in the child's cognitive background. A comparison of the high with the low verbal groups on an interview questionnaire, and a mother-child interaction situation revealed the following differences:

1. High verbal group mothers gave their children more verbal stimulation during infancy and early childhood, remembered a greater number of their children's early accomplishments, let their children participate more in conversations, punished them less for poor speech, and bought more story books for them.
2. High verbal group mothers criticized their children more for poor academic achievement, had more restrictions, and perceived their husbands as stricter than themselves.
3. With the high verbal group, it was the father's reading time which correlated highly for the high verbal girls' group.

IQ. Studies of intelligence test performance and social-class status reveal a deficit model. Mean differences between children of high SES and low SES (Stodolsky and Lesser, 1967) have been found consistently when measures of intelligence are administered. These differences have been found to be present at age four, and, in some cases, at younger ages (Bereiter, 1965; Gray and Klaus, 1965; Pasamanick and Knoblock, 1955; Bloom, 1964).





Intelligence test differences tend to increase with age. As a consequence there are larger mean differences in intelligence between low and high SES children in adolescence than in the early school years (Bloom, 1964; Hunt, 1961; Gordon, 1965; Davis, 1948; Karp and Sigel, 1965; Coleman et al, 1966).

Loban (1963) found the highest correlation between vocabulary and intelligence in his study of elementary school childrens' language. A close correlation was found to exist between high vocabulary, high IQ, and high SES levels.

Since 1950 a changed conception of intelligence has arisen. Intelligence, once viewed as innate, fixed and predetermined, has now come to be seen in a new light wherein intelligence tests are viewed as samples of learning based on general experiences (Stodolsky and Lesser, 1967).

Hunt (1961) has summarized the research evidence on intelligence. A few of the conclusions he comes to are as follows:

1. The belief in a fixed intelligence is no longer tenable.
2. What goes on 'in the mind' is somewhat akin to the active information processes programmed into the computer to enable them to solve problems.
3. Experience is the programmer of the human 'brain-computer.'
4. An opportunity to see and hear a variety of things appears to be more important than the fate of instinctual needs and impulses.
5. Learning is based more on intrinsic motivation which is inherent in information processing and action than upon homeostatic need.



Ultimately, Hunt views the effects of cultural deprivation as being somewhat analogous to the experimentally found effects of deprivation in infancy.

Havighurst and Breese (1947) found that children of higher class families tended to do better in all the tests administered to them than children from lower class families. Moreover, Anastasi and Foley (1956) discovered a difference of about twenty points between the children of day laborers and professionals according to the data compiled during the standardization of the 1937 revision of the Stanford-Binet.

John (1963) and Deutsch (1965) also discovered that some relationship existed between lower social class status and poorer scores on all IQ scores.

Sex. McCarthy (1954) in summarizing the influence of sex on language concluded that there is "convincing proof that a real sex difference in language development exists in favor of girls" (p. 580).

Anastasi and D'Angelo (1952), on the other hand, report sex differences favoring boys in two Negro groups on the Goodenough Draw-a-Man Test. Loban's (1963) study revealed that while boys in the low group made poorer subordination scores than girls, boys in the high group made better subordination scores.

Labensohn (1967) found that both IQ scores and sex, in favor of boys, were found to be significant predictors of vocabulary recall scores. No sex differences were found on vocabulary recognition and recall scores for the upper



socioeconomic status group. Boys were found to make significantly higher scores than girls on vocabulary recognition and recall measures in the lower socioeconomic status group.

### III. SUMMARY OF THE CHAPTER

This chapter has attempted to review the literature related to qualitative studies of vocabulary and factors influencing language development such as socioeconomic status, early childhood experiences, IQ, and sex. A strong relationship appears evident between language development and socioeconomic status. Early childhood experiences evidently comprise the "critical period" for language development and the interaction between hereditary factors and environment influences the IQ of the young child. Most studies of sex differences apparently favor girls except in the case of the lower classes where studies have found boys to be superior to girls in terms of test scores.





## CHAPTER III

### THE DESIGN OF THE STUDY

In this chapter the design of the study is described including the selection of the sample, the tests, the qualitative analysis of the recall vocabulary and the recognition vocabulary, and the analysis of the data.

#### I. THE SAMPLE

The subjects involved in this study consisted of 155 children selected from grades four to six of the Edmonton Public School System. Six schools were assigned by the supervisory staff for use in the study. Three of the schools were from an area designated as serving families of high socioeconomic status, with 692 children enrolled in the upper elementary grades of these schools. The remaining three schools were from areas designated as serving families of low socioeconomic status with a total of 311 children enrolled at the upper elementary grade level.

The children tested were all pupils of public schools in the city of Edmonton and to this extent were not representative of the general population. Studies by Anastasi (1958) and others have revealed discrepancies between city and rural children in mental ability. Reid and Conquest (1955) indicate that Alberta children follow the same pattern of differences indicated between rural



and urban school children. Nevertheless, it is assumed that the pupils represented in this study of Edmonton school children are representative of Edmonton school children as a whole and, hence, generalizations may be inferred to other Canadian cities of comparable size.

Demographic analysis. Edmonton is a rapidly expanding central Alberta city of over 400,000 people. The surrounding area is an important farming and cattle-raising district, but its main source of prosperity is oil. Edmonton was incorporated as a town in 1892 and as a city in 1904. Rapid population growth has been one of the salient features of Edmonton's development, a growth which is reflected in the unusual mobility of citizens, particularly in the out-lying suburbs. Nevertheless, there is evidence of residential stability in several central and suburban areas.

In terms of language characteristics, Edmonton's population is preponderantly English speaking (71.4 per cent). The majority of its citizens are Canadian born.

Occupationally, all levels of the Blishen Scale are well represented in Edmonton with the exception of farm and rural workers. According to Elley (1961), the mean occupational T score of a random sample of over four hundred Grade VI pupils was only 1.63 higher than Blishen's mean of 50, while the sample standard deviation was 9.35, merely 0.65 points less than the expected population value.





A recent sociological study by Kupfer and his associates (March, 1967) dealt primarily with the Edmonton area. In his analysis of the population of the city, Kupfer stated that the most disadvantaged populations are located within or near the city centre in the Alex Taylor - Riverdale, McCauly and Victoria neighborhoods. Areas such as Donald Ross and North Edmonton represent isolated 'pockets' of poverty and, as such, do not cover large areas of the population. Census tracts 15, 19, 20, and 39 (see Figure 1), with few exceptions, appear to rank consistently low on the achieved and ascribed characteristics examined in Kupfer's study. Kupfer also lists the salient aspects characteristic of these disadvantaged areas:

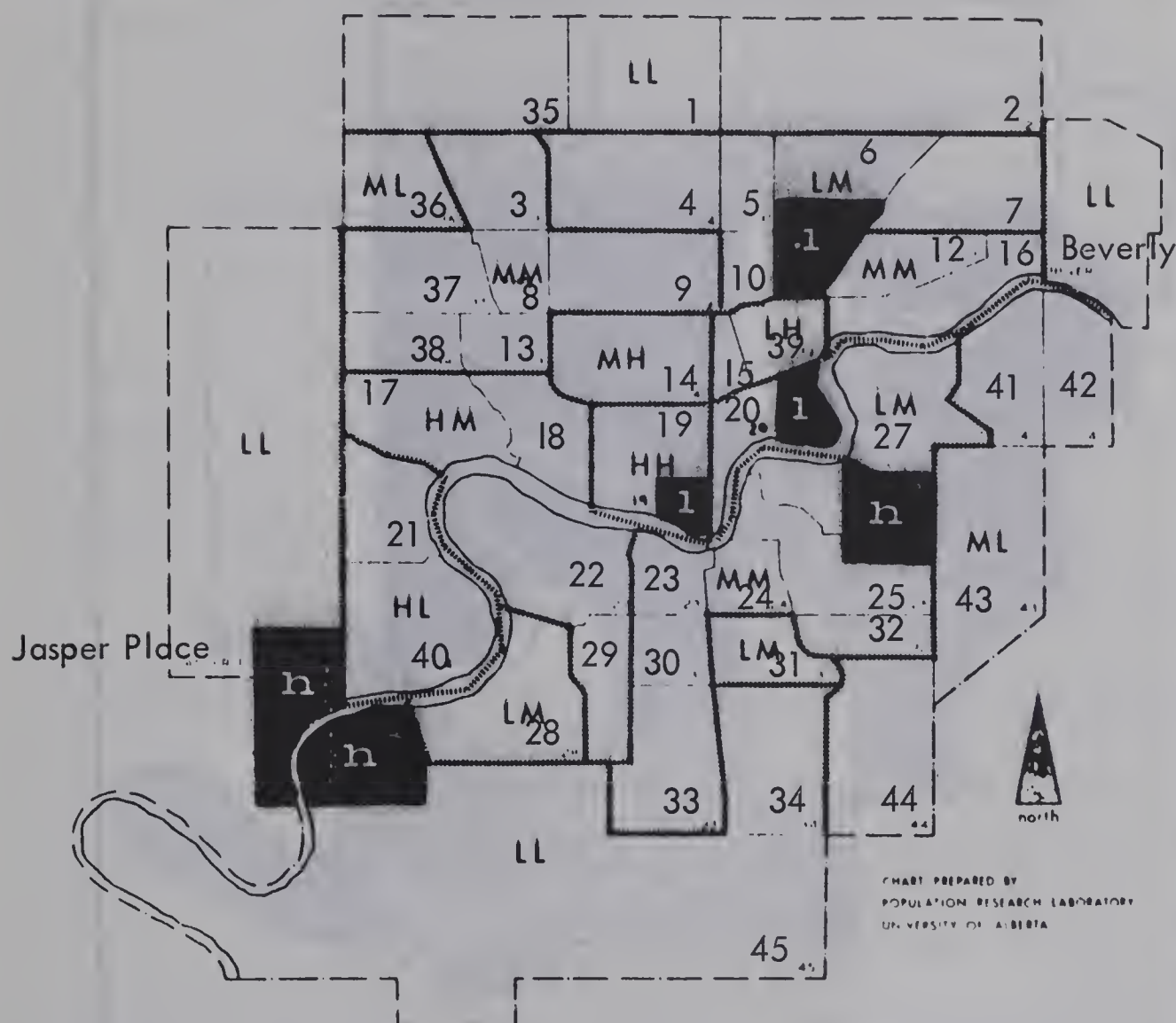
1. Aged
2. Males
3. Foreign-born
4. Post-1946 immigrants
5. Low fertility levels
6. Low education levels
7. Manual and semi-skilled workers
8. Low income levels
9. Older dwelling units constructed prior to 1920
10. Low median value of dwelling units
11. Low contract rents

By way of contrast, the high socioeconomic tracts 21, 22, 28, 40, and 43; ( see Figure 2), are located in the peripheral areas of the city. Such areas have been constructed within the past few years and constitute more stable residential sections such as Gold Bar, Grandview Heights, Rio Terrace, Windsor Park, and, more recently, Lansdowne and Quesnell Heights. Kupfer's study indicates that such areas are characterized by the following points:



FIGURE 1

URBAN SOCIAL AREAS EDMONTON, ALBERTA: 1961  
 SHOWING LOCATIONS OF SELECTED SCHOOL SAMPLE  
 (FROM KUPFER, COMMUNITY OPPORTUNITY  
 ASSESSMENT: EDMONTON STUDY, 1967)



## EXPLANATORY NOTE

SHEVRY AND BELL DIMENSIONS -- SOCIAL RANK AND URBANIZATION -- ARE INDICATED BY LETTERS ON MAP IN FORM OF HIGH H, MEDIUM M, AND LOW L SCORES. VARIOUS COMBINATIONS OF SCORES REPRESENT DIFFERENT SOCIAL AREA TYPES. FOR EXAMPLE, THE SOCIAL AREA LL INDICATES A LOW SOCIAL RANK SCORE AND A LOW URBANIZATION SCORE. FOR FURTHER EXPLANATION AND INTERPRETATION OF VARIOUS SOCIAL AREA TYPES, SEE TEXT.

## LEGEND

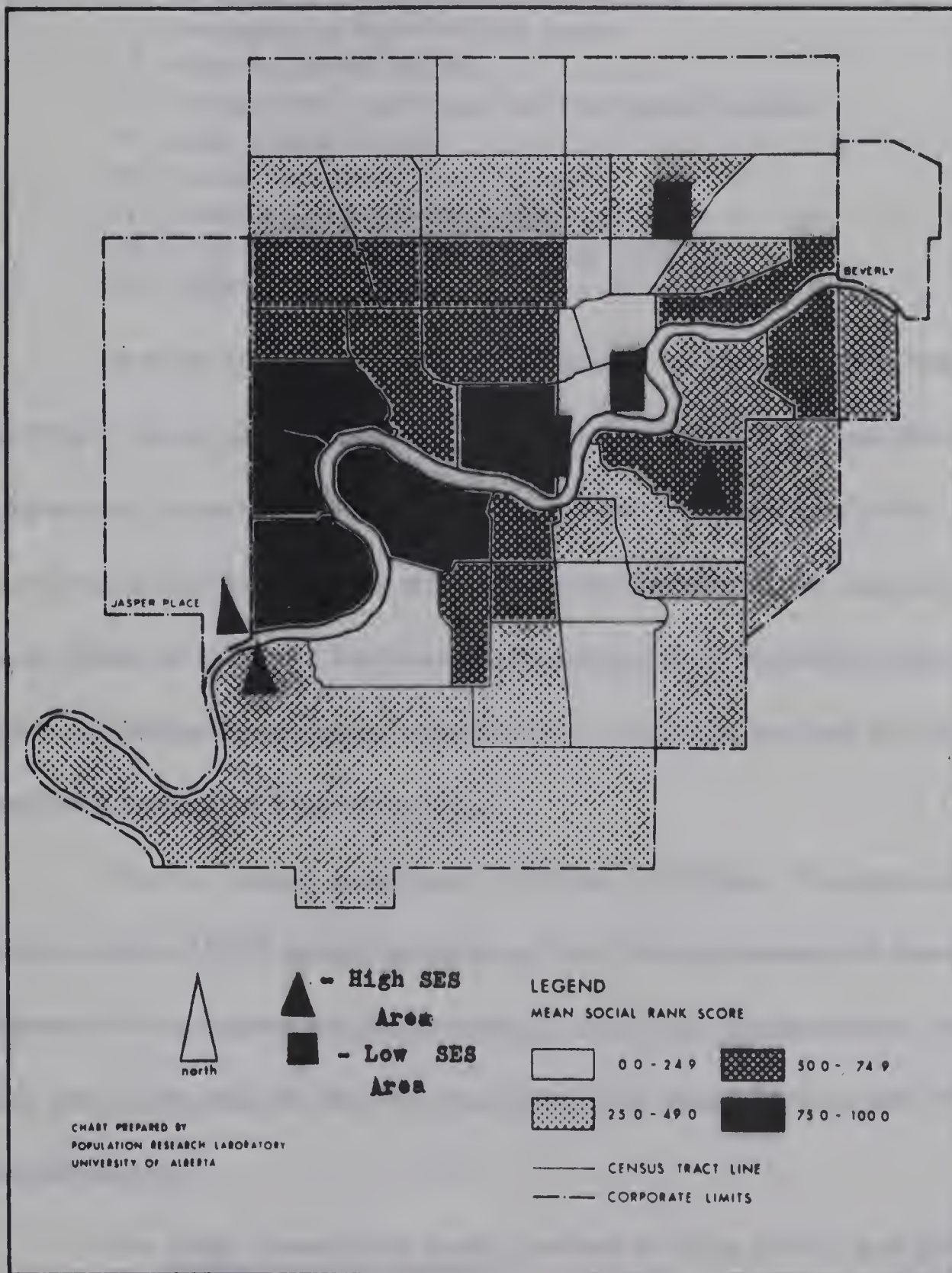
- CENSUS TRACT LINE
- CORPORATE LIMITS
- ..... SOCIAL AREA LINE

- h** - High SES Area
- l** - Low SES Area





SOCIAL RANK SCORES SHOWING  
LOCATIONS OF SCHOOL SAMPLE  
(FROM KUPFER, COMMUNITY OPPORTUNITY  
ASSESSMENT: EDMONTON STUDY, 1967)







1. A high proportion of children
2. Dependent populations
3. Moderate proportions of females
4. Low proportions of foreign-born populations
5. Few recent foreign-born immigrants
6. Moderate to high fertility levels
7. High education levels
8. Professional, technical and managerial workers
9. High income levels
10. Owner-occupied dwelling units
11. Dwelling units constructed since 1945
12. High median value of dwelling units
13. High contract rents

In order to obtain the desired sample of children from the total school population, the six schools selected for the study were chosen from those areas of highest and lowest socioeconomic status. Kupfer's (1967) analysis of the educational and occupational status, as well as income, of the residents of the city of Edmonton indicates that the school areas selected represent varying degrees of socioeconomic status essential to an equitable analysis of the total school population (see Figures 1 and 2).

The two sample groups were selected as follows: the upper socioeconomic status (USES) group was selected from the total sample of those children with the highest combined ratings. The lower socioeconomic status (LSES) group was selected from the total sample of those children with the lowest combined ratings.

The Gogh Home Index Scale, revised by Elley (1961) was given to each child individually. It was felt that pupils at the upper elementary school level were generally capable of supplying information requested on the



questionnaire. A copy of the questionnaire was placed in front of each child. The purpose of the questionnaire was explained to each child and then the questionnaire was read to each child by the examiner. The replies given by the child were also written down by the same examiner.

The questionnaires were rated according to the directions given for the Gogh Home Index Scale. In addition, a rating was assigned to each child based on the occupation of the father according to Blishen's (1961) Canadian Occupational Scale. A final rating was established by combining the ratings of the Gogh Home Index Scale and the Canadian Occupational Scale with equal weights assigned to each.

In addition to obtaining a social status rating, further information was obtained from the Gogh Home Index Scale relative to the home situation of each child in the sample. It was possible, in the majority of cases, to ascertain whether the father or mother were present or absent in the home by examining the section of the questionnaire designated as, "occupation of father" and "occupation of mother." Approximately 13 per cent of the sample displayed evidence of parental absence. A rating was assigned (1 - presence of either parent in the home; 0 - absence of either parent in the home) in order to facilitate statistical analysis of this information and to show its effect on the other variables.





## II. THE TESTS

IQ. The Otis Self-Administering Test of Mental Ability was chosen as the most suitable to the present task at hand. The Intermediate Examination together with the Higher Examination constitute the Otis Self-Administering Tests of Mental Ability, covering the range from the fourth grade to the university. The Intermediate Examination is designed for grades four to nine. The single score which is obtained on this test is highly dependent upon the use that the pupil makes of verbal symbols. Reliability of the test has been determined by means of correlation between different forms of the same test.

The actual rate of progress of pupils through school is the criterion for the validity of this test. The determination of the validity of each item consisted of comparing the number of passes of that item by a group of pupils who were making rapid progress through school with a number of passes of the item by a group of pupils who were making slow progress through school. Only those items were used which showed a distinct gain in number of passes of the slow-progress pupils.

Recall Vocabulary Test. The Vocabulary Subtest of the Stanford-Binet Intelligence Scale, Form L-M, was selected as the most appropriate measure of vocabulary in which the subject is required to recall an appropriate meaning for a given word. The test consists of forty-five words graded to difficulty, to which an acceptable oral definition must be given in order to secure



credit. The test has excellent standardization. The words in the present test were arranged in order of their present difficulty for subjects tested in 1950-54 (Terman, L.M., and M. A. Merrill, 1960). The test extends downward to the six-year level and upward to the superior-adult level. Terman and Merrill (1937) stated that the test possesses high interest value while, at the same time, presenting a task which is familiar to the subject. Other desirable features include such items as ease and quickness in administering the test.

Feifel and Lorge (January, 1950) state that the definitions given to the forty-five words allow qualitative differences in the responses to be revealed. Furthermore, these same writers have established qualitative norms for age levels for children aged six to fourteen with the Stanford-Binet Test. Some problems do exist, however, in attempting a qualitative analysis with the Stanford-Binet Vocabulary Subtest. Feifel and Lorge (1950) outline some of these difficulties:

. . . one should bear in mind that not all of the words of the test permit a full range of qualitative differences to express themselves in the verbatim responses . . . . Whereas for a word like 'orange' one can reply with various types of acceptable answers, e.g., 'color' (synonym), 'citrus fruit' (synonym modified), 'you eat it' (use), 'it's round' (description), etc., the correct answers for a word like 'piscatorial' are usually limited to a synonym or synonym-type of definition, e.g., 'pertaining to fishes' or 'fishlike' (p. 4).

Ricks (July, 1958) has stated that the composition of the vocabulary test in terms of parts of speech is worth noting and that use and description types of responses are given less frequently and easily to verbs and adjectives than to





nouns. An analysis of the Binet list reveals that about 70 per cent of the words may be classed as nouns.

The investigator administered the test according to instructions given in the Manual for the Third Revision (Terman and Merrill, 1960). Quantitative scoring was first carried out according to Terman's directions. Next all verbatim word definitions were rescored in terms of the fivefold system developed by Feifel (1949).

Testing was conducted during the month of May (1966) in the various schools selected for the study. Students were tested individually in a room provided for the purpose. The test was presented both orally and visually; the list of words was typed on a sheet so that each word could be read by the subject while it was being pronounced by the investigator. The responses were recorded on tape for transcription at a later date.

According to the manual, there appears to be little likelihood of success beyond the point where six consecutive words have been failed. Owing to the large number of students tested, the examiner adopted this rule as a criterion upon which to cease testing.

Recognition Vocabulary Test. This test was designed by Lorraine P. Kruglov (1953) in an attempt to discover whether differences in vocabulary responses, characteristic of the different age levels, as found by Feifel and Lorge in analyzing responses to a recall type vocabulary test, would also be displayed in a vocabulary test of the recognition type.





A multiple-choice vocabulary test was constructed in which three or four of the five choices were correct according to the traditional scoring system for the Stanford-Binet, but of different qualitative levels according to the Feifel-Lorge study. Children, at different age levels, were asked to choose the 'best' meaning for each word. Responses at different age levels were analyzed to see whether qualitative differences held up when a recognition type test is used. (Kruglov, 1953, p. 231).

A ten item vocabulary test was constructed using as stem words items 1, 2, 4, 6, 7, 10, 12, 14, 17 and 23 of the vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L. The five choices for each item were chosen from verbatim responses made by children to the recall type item. An example of the test is presented in the appendix to the thesis. In all, there were fifty choices in the ten word vocabulary test. These choices are classified in Table I.

Twenty-six per cent of the choices found on the test were characteristic of Feifel's higher conceptual levels - synonyms and explanations. Forty-six per cent were characteristic of the lower conceptual levels or concrete approach - use and description, and repetition, illustration, and inferior explanation, and 28 per cent were errors (p. 234).

After Kruglov had employed her test by administering it to 149 students from the Grade three level to college graduates, and after extensive analysis of the responses given to the test, she came to the following conclusions:



TABLE I  
CLASSIFICATION OF CHOICES IN THE RECOGNITION VOCABULARY TEST BY TYPE OF RESPONSE

| Type of Response                               | Number | Per cent |
|--|--------|----------|
| Synonym  | 10     | 20       |
| Explanation                                    | 3      | 6        |
| Use and Description                            | 14     | 28       |
| Repetition, Illustration, Inferior Explanation | 9      | 18       |
| Errors   | 14     | 28       |
|  | 50     | 100      |





1. There is an increase in the choice of synonyms as correct responses from grade three through college graduates, the difference in the per cents of synonyms being significant between grades three-seven and college graduates.
2. There is a significant decrease in the per cent of repetition-illustration-inferior explanation type responses between grades three-seven and college graduates.
3. There are no significant differences between the per cents of use and description type responses and the per cents of explanation type responses chosen by the students in the different grades.
4. The most significant finding is the fact that even though a definition of a higher conceptual level is presented to the young child he tends to choose the response characteristic of the lower conceptual level - his own conceptual level. He thus responds to the test in terms of his own conceptual level.

This test was administered as a group test in May (1966). The test was administered after the recall vocabulary test was given to avoid bias in the recall vocabulary test results. Test directions were read to the students and when instructions were clarified, the test was given orally to the group.

None of the subjects exhibited any difficulty in understanding the directions. Testing took approximately ten minutes so that fatigue and waning of interest were not contributing factors in invalidating test results.

### III. QUANTITATIVE ANALYSIS

All protocols were given a score based upon the criteria recommended by Terman (1960). According to Terman, it is important to recognize that the



purpose of this vocabulary test is to determine whether the subject knows the meaning of a word, not whether he can give a completely logical definition. To avoid bias in the scoring of the protocols, all information on the record blank about each of the subjects was masked, so that scoring took place with simply the manual and response card before the scorer. Individual scores were then recorded on a chart.

#### IV. QUALITATIVE ANALYSIS

Responses given by the pupils were recorded and later transcribed.

The following procedure was utilized in the analysis of the responses:

1. The definition of each word for each subject was mounted on a separate card. The identification number of the subject was placed on the back of each card.
2. The definitions were then sorted according to the word defined, that is, all the responses for the word "orange," for example, were placed together.
3. Definitions for each word were then classified according to the type of response.
4. A master chart was constructed which listed the category of each response for each subject.

Feifel's classification system was utilized in carrying out the qualitative analysis. The categories, with an illustration of each as presented by Feifel and Lorge (1950, p. 4) are listed below.



### Synonym Category

- |   |                             |
|---|-----------------------------|
| a) Synonym unmodified:                      | Orange - fruit              |
| b) Synonym modified by use:                 | Straw - hay that cattle eat |
| c) Synonym modified by description:         | Gown - a long dress         |
| d) Synonym modified by use and description: | Eyelash - hair over the eye |
| e) Synonym qualified as to degree:          | Tap - touch lightly         |

### Use, Description, and Use and Description Category

- |                         |                                    |
|-------------------------|------------------------------------|
| a) Use:                 | Orange - you eat it                |
| b) Description:         | Straw - it's yellow                |
| c) Use and Description: | Orange - you eat it and it's round |

### Explanation Category

- |                 |   |
|-----------------|---|
| a) Explanation: | Priceless - it's worth a lot of money   |
|                 | Skill - being able to do something well |

### Demonstration, Repetition, Illustration and Inferior Explanation Category

- |                         |                                   |
|-------------------------|-----------------------------------|
| a) Demonstration:       | For words like tap, eyelash, etc. |
| b) Repetition:          | Puddle - a puddle of water        |
| c) Illustration:        | Priceless - a gem                 |
| d) Inferior Explanation | Scorch - hot                      |

### Error Category

(Incorrect Demonstration, Misinterpretation, Wrong Definition, Clang Association, Repetition without Explanation, Omits)

- |                                 |                             |
|---------------------------------|-----------------------------|
| a) Incorrect Demonstration:     | Eyelash - points to eyebrow |
| b) Misinterpretation:           | Regard - protects something |
| c) Wrong Definition:            | Orange - a vegetable        |
| d) Clang Association:           | Roar - raw, skill - skillet |
| e) Repetition with Explanation: | Puddle - puddle             |
| f) Omits:                       | When the word is left out   |





Feifel and Lorge (1950) analyzed the responses of 900 children between the ages of six and fourteen to the Stanford-Binet vocabulary subtest using this system. As a result of their study, the categories were arranged in hierarchical order. Research points out that these categories represent a hierarchy of conceptual levels (Grant, 1965). Figure 3 is a graphic representation showing each type of response and the findings of Feifel and Lorge showing mean frequency of use with different ages.

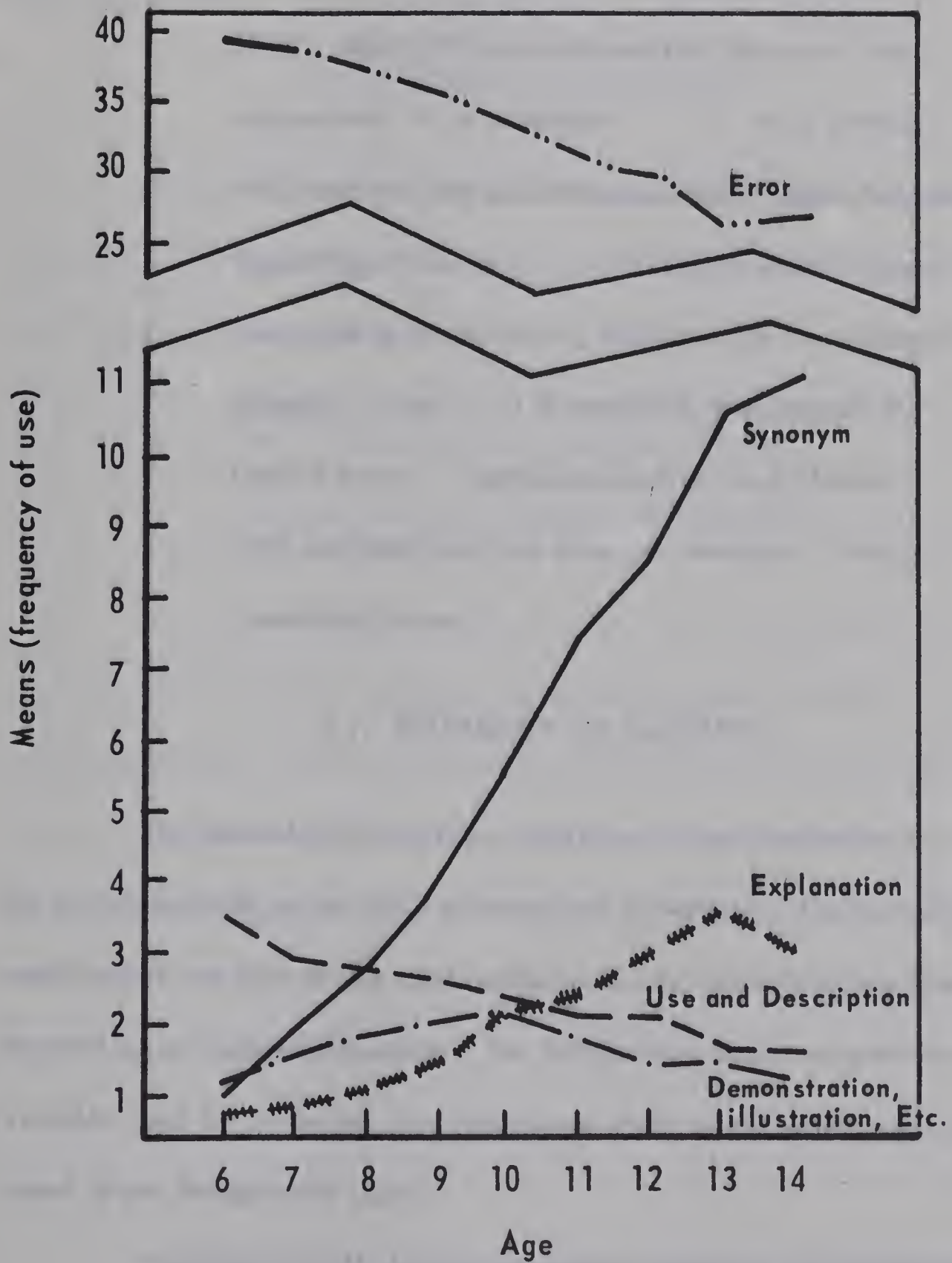
## V. PRINCIPLES OF SCORING

The following scoring principles were used by the writer:

1. If a word was defined at more than one level, the "highest" level at which the definition was offered was the one classified.
2. If the Stanford-Binet vocabulary score was zero, the definition was automatically qualitatively scored in the Error category.
3. "Thing" and "something" were generally classified as synonyms when they were modified. However, some of the responses of this type were more immature than others and did not fit into the synonym category. Burt (1947) considered "something you eat with" for "fork" as inferior to "something



MEAN FREQUENCY OF USE OF FIVE  
QUALITATIVE CATEGORIES BY AGE  
(Feifel and Lorge, 1950, p. 9)







that you pick up your food with." While this distinction is somewhat arbitrary it seems to correspond with a genuine difference in mental level. Binet (1916) considered that the use of the expressions, "It is an object . . .," "It is a thing . . .," indicated that the definition was less childish than one beginning, "It is to . . . ." In this study, expressions such as the following were put into the synonym category: "tap" - "it is something that controls the flow of water." Expressions such as the following were excluded from the synonym category: "orange" - "something to eat."

## VI. RELIABILITY OF SCORING

The method by which the reliability of classification for the recall test was determined on the basis of interscorer agreement. Twelve words, or twenty-seven per cent of the total number of words, were randomly drawn and rescored by an independent scorer. The independent scorer adopted the scoring principles used by the writer, but the ratings given by the writer were not disclosed to the independent scorer.

Arrington's (1931) formula was used to compute, in percentage points, the degree of agreement between the scoring which was carried out on an



independent basis. Hence, the responses in each observer's scoring that agreed with the other's (i.e., doubling the agreements) was divided by this total plus disagreements or

$$\frac{2X \text{ agreements}}{2X \text{ agreements} + \text{disagreements}} .$$

The percentage of agreement between the two scorers for the twelve words was 95 per cent. Thus the reliability of the qualitative scoring in this study appeared to be satisfactory.

## VII. DERIVATION OF RECALL AND RECOGNITION VOCABULARY SCORES

To obtain a qualitative recall score and a recognition score, it was essential that a numerical weighting be assigned to each category. Labensohn's (1967) assigning of values to the categories on the basis of their hierarchical order was adopted. She assigned the following values to the respective categories:

|                      |   |
|----------------------|---|
| Synonym              | 4 |
| Use and Description  | 3 |
| Explanation          | 2 |
| Inferior explanation | 1 |
| Error                | 0 |

Using these values it was possible to obtain a total recall score for each subject in the following manner: recall score = 4X the number of responses



in the synonym category + 3X the number of responses in the Use and Description category + 2X the number of responses in the Explanation category + 1X the number of responses in the Inferior Explanation etc., category.

## VIII. ANALYSIS OF THE DATA

The "t" test was used to test for significant differences between the two groups selected on the basis of socioeconomic status ratings on the following: age, grade, sex, socioeconomic status, Otis Self-administering Tests of Mental Ability, Intermediate Examination score, recognition score, recall score, quantitative score, presence or absence of either parent in the home, and the number of responses in each of the categories of the qualitative classification system.

Multiple linear regression models were used to test whether the following variables contributed significantly to the prediction of the recognition and recall scores within the total sample: age, sex, grade, socioeconomic status, Otis Self-Administering Tests of Mental Ability, Intermediate Examination score, quantitative score, and the presence or absence of either parent in the home.

## IX. SUMMARY OF THE CHAPTER

This chapter has described the design of the study with its several parts consisting of the sample, the tests, the qualitative analysis of vocabulary, and the analysis of the data.





## CHAPTER IV

### FINDINGS

This chapter presents the findings of the study. In all cases the variables were: recall vocabulary score, quantitative vocabulary score, recognition vocabulary score, mental age scores of the Otis Self-Administering Tests of Mental Ability, Intermediate Examination, presence or absence of either parent in the home, sex, age, and grade level. Where the effects of the variables on recall score are considered, recall score is omitted as a contributing variable. Where the effects of the variables on quantitative score are considered, quantitative score is omitted as the contributing variable. Where the effects of the variables on recognition score are considered, recognition score is omitted as a contributing variable. The data are presented in the following order:

1. Discussion of the means and standard deviations of the scores of each variable for the total sample.
2. Comparisons between the two groups selected on the basis of socio-economic status ratings.
3. Intercorrelations among all the variables
4. Regression analysis utilizing all the variables.

The chapter concludes with a brief summary of the results.



## I. MEANS AND STANDARD DEVIATIONS OF ALL DATA FOR THE ENTIRE SAMPLE

An examination of Table II reveals that the standard deviation for chronological age, measured in months, shows a fairly wide dispersion of scores. This fact, coupled with the fact that the sample shows a high mean chronological age is explainable when one examines the Continuous Progress Plan which is in operation in the Edmonton Public School System. Under this plan, children entering the first grade are divided into three "tracks" or "streams": an accelerated group, an average group, and a low average group. The accelerated group completes six grades in five years while the low average group takes seven years to complete the equivalent of six grades of schooling. The average group, of course, completes six grades in six years. Hence, for the purpose of this study, children were categorized as being in the fourth, fifth or sixth grade in school rather than being in their fourth, fifth or sixth year in school.

Mental age in months, as derived from the scores of the Otis Self-Administering Tests of Mental Ability, Intermediate Form, displayed an even wider dispersion of scores than those indicated for chronological age. This difference was not surprising since intellectual ability typically varies widely within any restrictions of chronological age. Moreover, the nature of group intelligence tests is such that the mean score tends to be higher due, in part, to the element of chance. Weiner and Tobias (1963) estimate that guessing alone may account for as many as 16 points on some group intelligence tests. However, despite the limitations inherent within such a test, it did serve a useful function. The test was employed primarily as a means of arriving at a uniform mental age score for





TABLE II  
MEANS AND STANDARD DEVIATIONS  
OF EACH VARIABLE SCORE

| N = 155                           |         |                    |
|-----------------------------------|---------|--------------------|
| Variable                          | Mean    | Standard Deviation |
| Chronological Age                 | 131 .15 | 11 .58             |
| Mental Age                        | 158 .23 | 27 .02             |
| Grade: Total                      | 4 .99   | 0 .81              |
| Grade IV                          | 0 .33   | 0 .47              |
| Grade V                           | 0 .34   | 0 .47              |
| Grade VI                          | 0 .32   | 0 .47              |
| Socioeconomic Status              | 55 .40  | 20 .10             |
| Recall Vocabulary                 | 48 .81  | 15 .69             |
| Quantitative Vocabulary           | 14 .72  | 3 .98              |
| Recognition Vocabulary            | 28 .69  | 4 .75              |
| Presence of Either Parent in Home | 0 .13   | 0 .34              |
| Absence of Either Parent in Home  | 0 .87   | 0 .34              |



the total sample as these scores varied from school to school depending upon the particular test administered in that school. As indicated in Table II, the mean intelligence quotient lay in the high average range of ability.

The maximum possible score for socioeconomic status, as measured by the Blissen Occupational Class Scale and the Gough Home Index Scale combined, is 190 units. The mean score for the entire sample was 55.40, a score based on the percentage obtained by combining the two previously mentioned scales with equal weights. The high standard deviation from the mean on this variable may be accounted for by stating that the range of social class scores for the total sample was quite varied thereby indicating that randomness of sampling was achieved with some degree of success.

The three kinds of vocabulary sampled in the study (recall, quantitative, and recognition) reveal varying tendencies in terms of their means and standard deviations. For example, the means and standard deviations for quantitative vocabulary were quite small. However, this is explainable on the basis of the scoring system for this variable where a score of one is given for the correct response and a zero for an incorrect response. Recall vocabulary, on the other hand, utilized as its scoring system the Feifel (1949) classification of responses with a gradient of values assigned for each category (See Labensohn, 1967, pp. 36-37). The resultant effect was a higher mean score as higher values were assigned to the more abstract kinds of responses given by the young child even though the same words were evaluated as those in the quantitative tests.





Moreover, the standard deviation for recall vocabulary was large indicating a wide range in the kinds of responses offered by the children.

The recognition vocabulary test consisted of ten words selected from the Stanford-Binet vocabulary subtest with five 'solutions' provided for each item. The test required that the young child select the one correct response as he saw it, thereby providing a basis for sampling the conceptual level of the child's ability to recognize words within a given context. For this test, the mean score was comparatively large and the standard deviation small, indicating that recognition vocabularies were somewhat the same in terms of content despite the variance in social class levels.

In terms of sex and the presence or absence of either parent in the home, both means and standard deviations were small indicating that these variables did not contribute to the variance of scores to any great extent. The method by which parental absence was sampled was to give a zero if information supplied by the Home Index Scale indicated that the parents (either one or both) were not present in the home because of divorce, death, separation or if the children were institutionalized. A one was given if the information indicated that both parents were at home. The inadequacy of this sampling technique indicates its obvious weakness as a device for sampling such information. A more refined method would have been utilized had time permitted. However, the necessity of gathering the information needed for the study was restricted owing to school regulations governing the amount of time allotted in the schools for this project.





## II. COMPARISONS BETWEEN THE TWO GROUPS

Means and standard deviations for the two groups on the Otis Self-Administering Tests of Mental Ability, Intermediate Form mental age scores are presented in Table III. The mean score for the USES group was 169.57 and the mean score for the LSES group was 147.04. The difference between these two means was found to be significant beyond the .01 level on a two-tailed "t" test. Figure 4 shows the distribution of scores for the two groups.

The mean score on the recall test for the USES group was 56.17 and the mean score for the LSES group was 41.55. Means and standard deviations for both groups are shown in Table III. The difference between the means was found to be significant beyond the .01 level. The distribution of scores for both groups is shown in Figure 5.

The mean score on the quantitative test for the USES group was 16.62 and the mean score for the LSES group was 12.85. Means and standard deviations for both groups are shown in Table III. The difference between the means was found to be significant beyond the .01 level. The distribution of scores for both groups is shown in Figure 6.

The mean score on the recognition test for the USES group was 29.95 and the mean score for the LSES group was 27.45. Means and standard deviations for both groups are shown in Table III. The difference between the means was found to be significant beyond the .01 level. The distribution of scores for both groups is shown in Figure 7.



TABLE III  
DIFFERENCES BETWEEN MENTAL AGE AND  
VOCABULARY SCORES OF USES AND  
LSES GROUPS

| Variables           | USES Group<br>(N=78) |       | LSES Group<br>(N=77) |       | t       |
|---------------------|----------------------|-------|----------------------|-------|---------|
|                     | Mean                 | S. D. | Mean                 | S. D. |         |
| SES Scores          | 72.75                | 10.69 | 38.27                | 9.95  | 20.65** |
| Otis Scores         | 169.57               | 23.88 | 147.04               | 25.21 | 5.67**  |
| Recall Scores       | 56.17                | 14.63 | 41.55                | 13.11 | 6.51**  |
| Quantitative Scores | 16.62                | 3.53  | 12.85                | 3.47  | 6.68**  |
| Recognition Scores  | 29.95                | 4.07  | 27.45                | 5.04  | 3.37**  |

\*\*Significant at the .01 level,  $\alpha > 2.33$





FIGURE 4

DISTRIBUTION OF OTIS SELF-ADMINISTERING  
TESTS OF MENTAL ABILITY MENTAL AGE SCORES  
OF USES AND LSES GROUPS

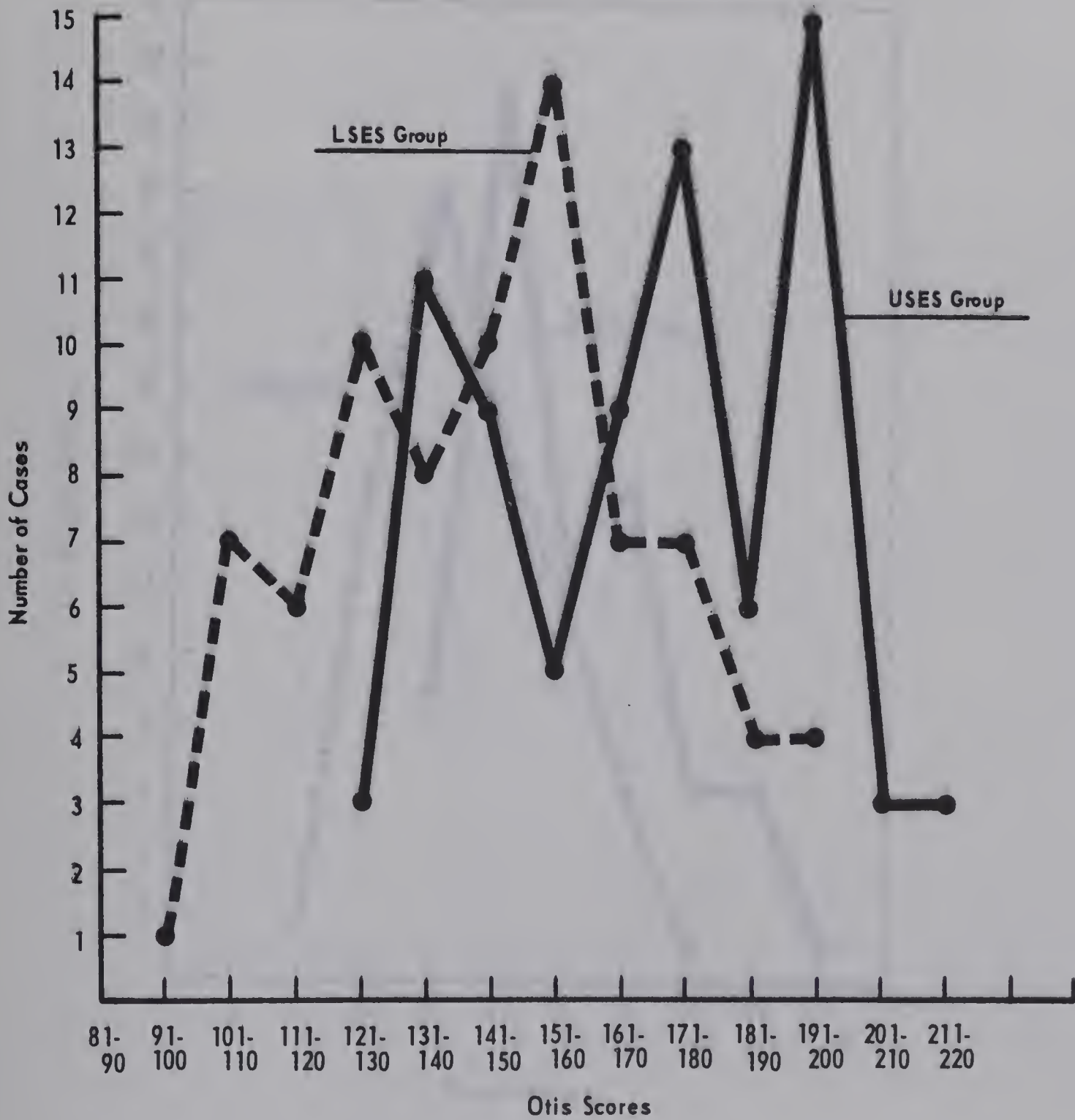




FIGURE 5

DISTRIBUTION OF RECALL SCORES OF  
USES AND LSES GROUPS

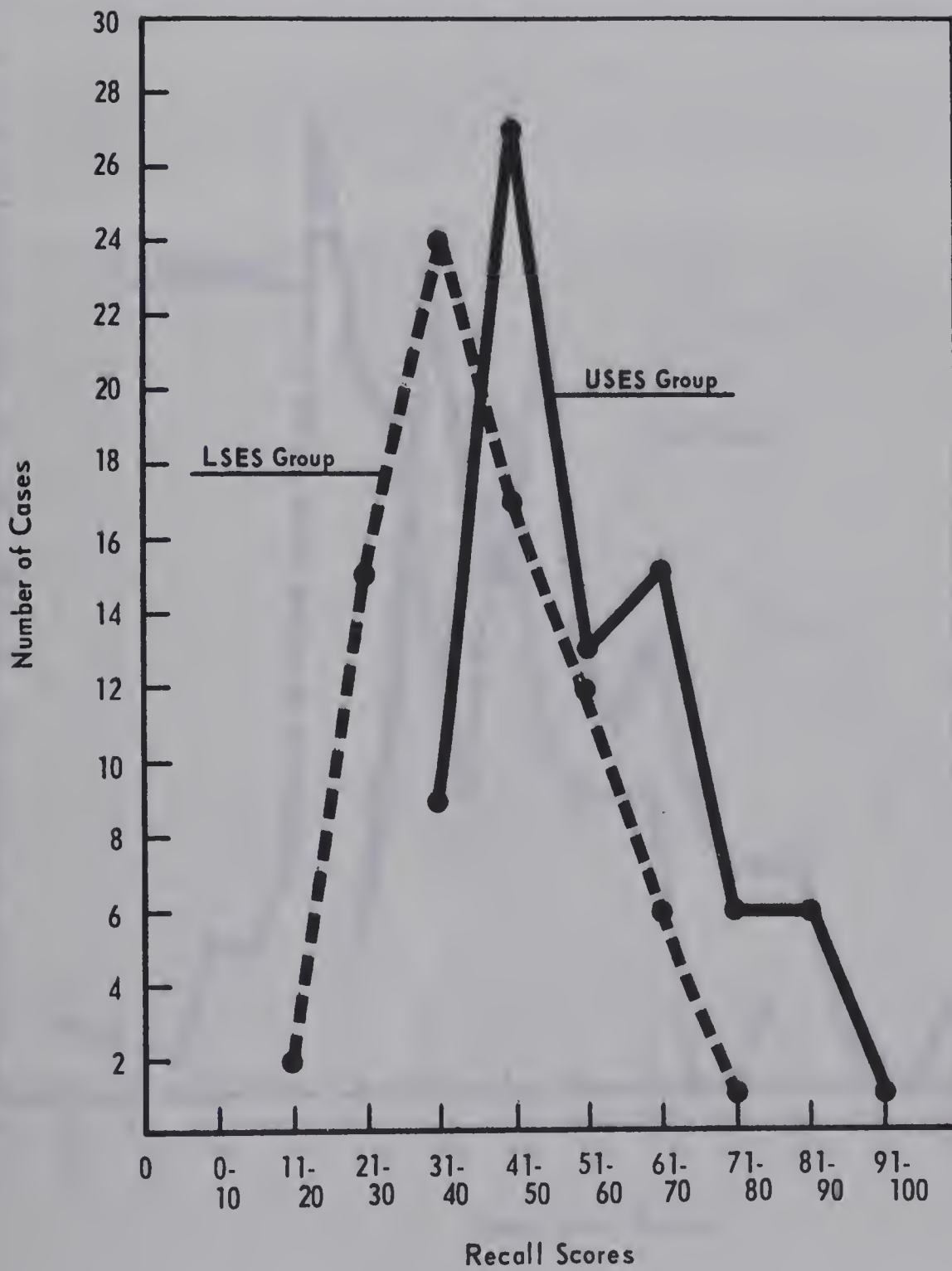




FIGURE 6

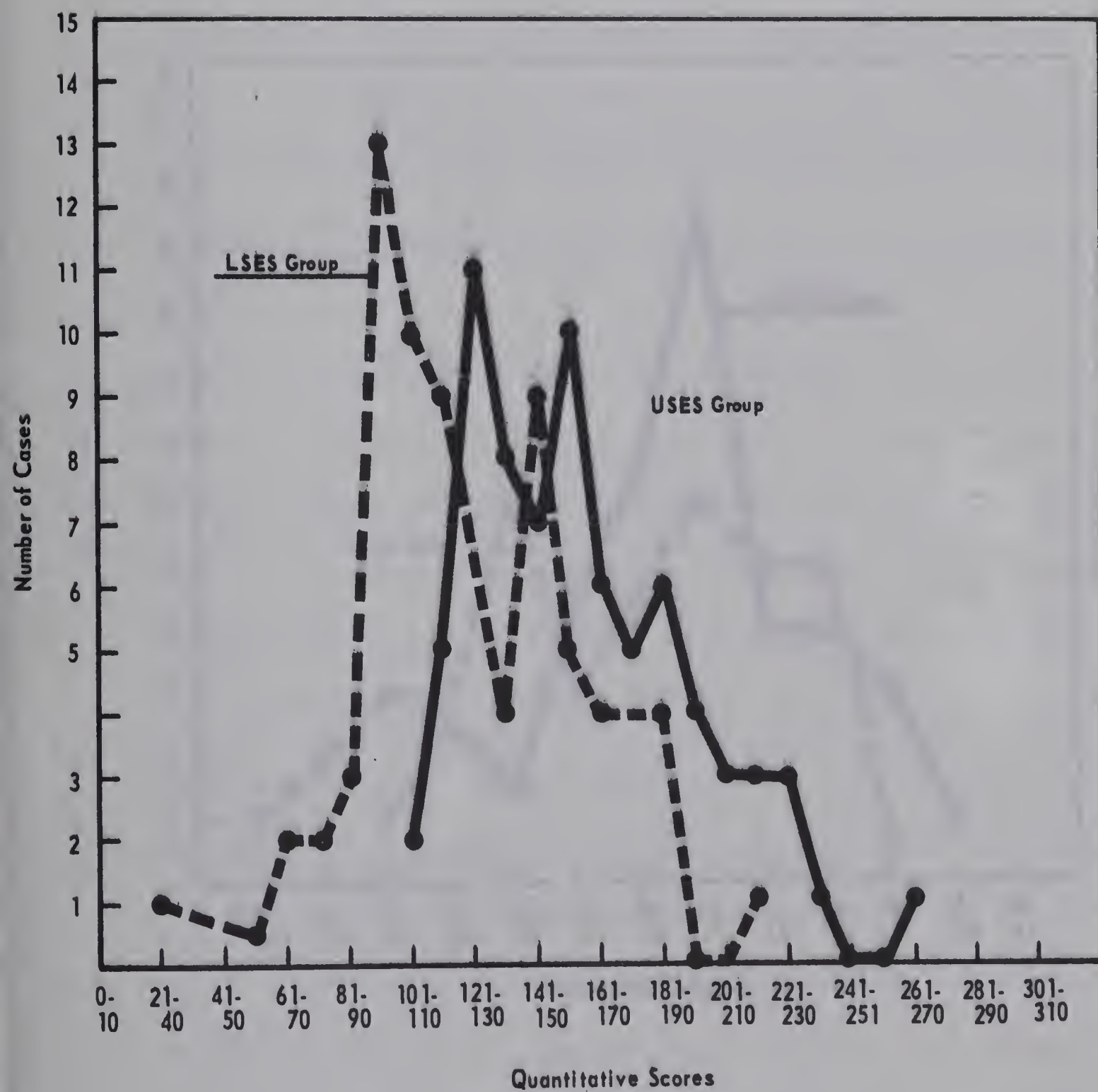
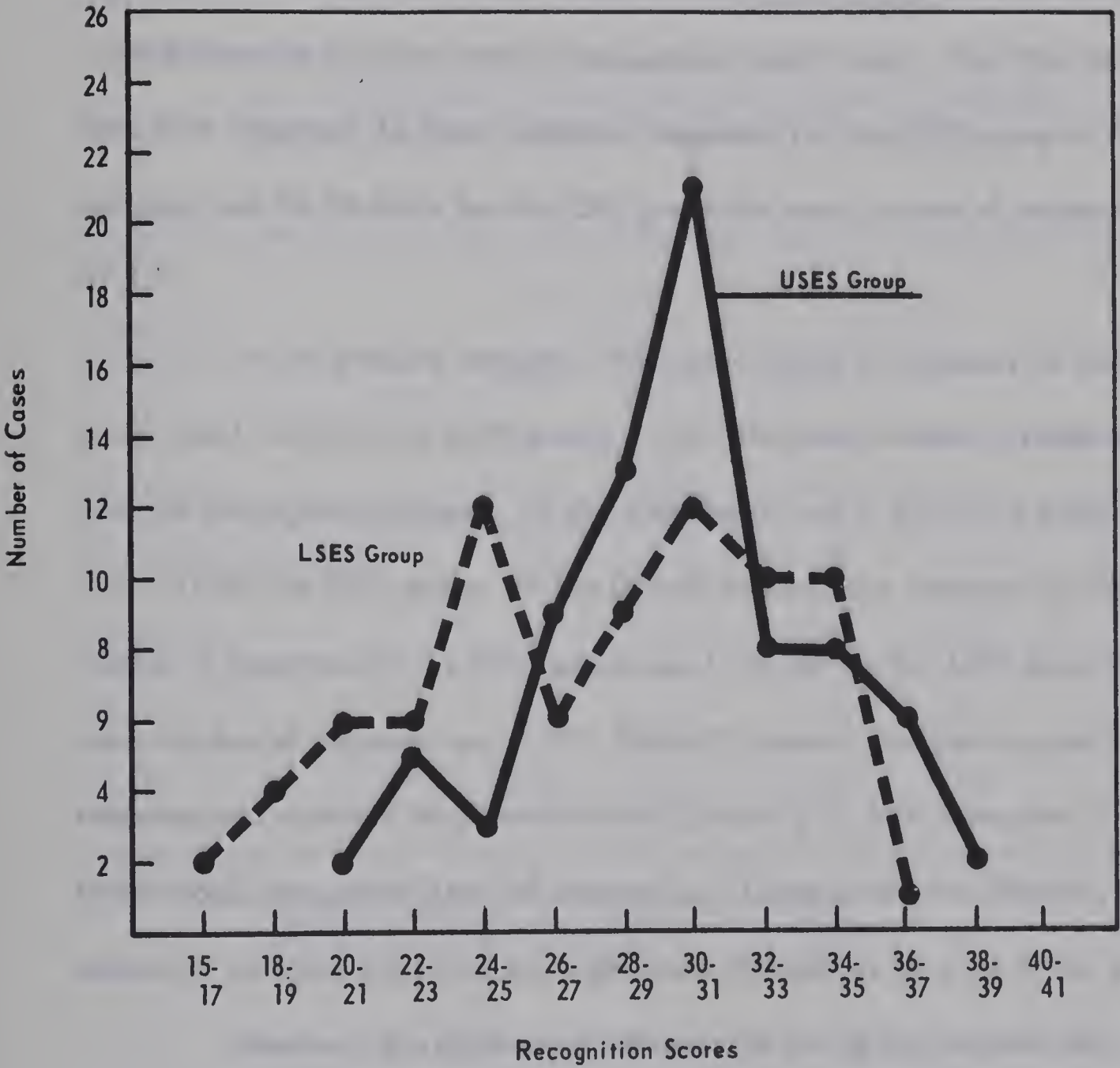
DISTRIBUTION OF QUANTITATIVE SCORES OF  
USES AND LSES GROUPS





FIGURE 7  
DISTRIBUTION OF RECOGNITION SCORES OF  
USES AND LSES GROUPS





Characteristics of Pupil Responses in the Recall Test . For both groups the majority of responses were in the Error category owing perhaps, to the highly abstract nature of the test items on the Standord-Binet; a test whose range extends from the six-year level to the superior-adult level . Out of a total of forty-five responses the mean number of responses for the USES group in this category was 28.38 while for the LSES group the mean number of responses was 32.15.

In the synonym category , the mean number of responses for the USES group was 11.42, for the LSES group, 8.03. The mean number of responses in Use and Description category , on the other hand, was 1.86 for the USES group and 1.71 for the LSES group . In the Inferior Explanation category the mean number of responses for the USES group was 1.74 and for the LSES group the mean number of responses was 1.90. Table IV presents the mean number of responses and standard deviations for both groups in all five categories. Of the three middle categories (Use and Description, Explanation and Inferior), no particular category displayed any significant differences favoring either group .

However , the differences between the two groups became most apparent when one examined the highest and lowest categories of the hierarchical system, namely, the Synonym and Error categories. The mean number of responses in the Synonym category for the USES group was 11.42, for the LSES group, 8.03. This difference is significant beyond the .01 level on a two-tailed "t" test . In the Error category this pattern is reversed . In this category, the mean





TABLE IV

DIFFERENCES BETWEEN NUMBER OF RESPONSES IN EACH OF  
THE CATEGORIES OF THE CLASSIFICATION SYSTEM OF  
USES AND LSES GROUPS FOR RECALL VOCABULARY

| Qualitative<br>Category | USES Group<br>(N=78) |      | LSES Group<br>(N=77) |      | t       |
|-------------------------|----------------------|------|----------------------|------|---------|
|                         | Mean                 | S.D. | Mean                 | S.D. |         |
| Synonym                 | 11.42                | 3.96 | 8.03                 | 3.42 | 5.67**  |
| Use and Description     | 1.86                 | 1.08 | 1.71                 | 1.16 | 0.84    |
| Explanation             | 1.60                 | 1.21 | 1.22                 | 1.16 | 1.98*   |
| Inferior, etc.          | 1.74                 | 1.34 | 1.90                 | 1.38 | -0.71   |
| Error                   | 28.38                | 3.53 | 32.15                | 3.47 | -6.68** |

\*\*Significant at the .01 level,  $\gamma > 2.33$

\*Significant at the .05 level,  $\gamma > 1.64$



number of responses for the USES group was 28.38 and for the LSES group the mean number of responses was 32.15. This difference is significant beyond the .01 level of confidence. Figure 8 presents the mean distribution of responses by category for each group.

Characteristics of Pupil Responses in the Recognition Test. For the two groups, the majority of responses given on this test were in the Synonym category. Out of a total of ten words (fifty possible choices in this multiple-choice type test) the mean number of responses for the USES group in this category was 5.57 and for the LSES group the mean number of responses was 4.74.

The mean number of responses in the Use and Description category was 0.78 for the USES group, for the LSES group, 0.82. In the Explanation category, the mean number of responses for the USES group was 1.92, for the LSES group, 2.17. The mean number of responses in the Inferior Explanation category for the USES group was 1.47. The mean number of responses for the LSES group in the same category was 1.78. Table V. presents the mean number of responses and standard deviations for the two groups in all five categories. No significant differences were found to exist between the means for the three middle categories (Use and Description, Explanation and Inferior Categories, respectively).

In like fashion to the recall test, however, significant differences were discovered in the highest and lowest levels of the hierarchical system (Synonym and Error categories, respectively). In the Synonym category, for



FIGURE 8

PERFORMANCE BY CATEGORY AS  
SHOWN BY QUALITATIVE ANALYSIS  
OF RECALL VOCABULARY

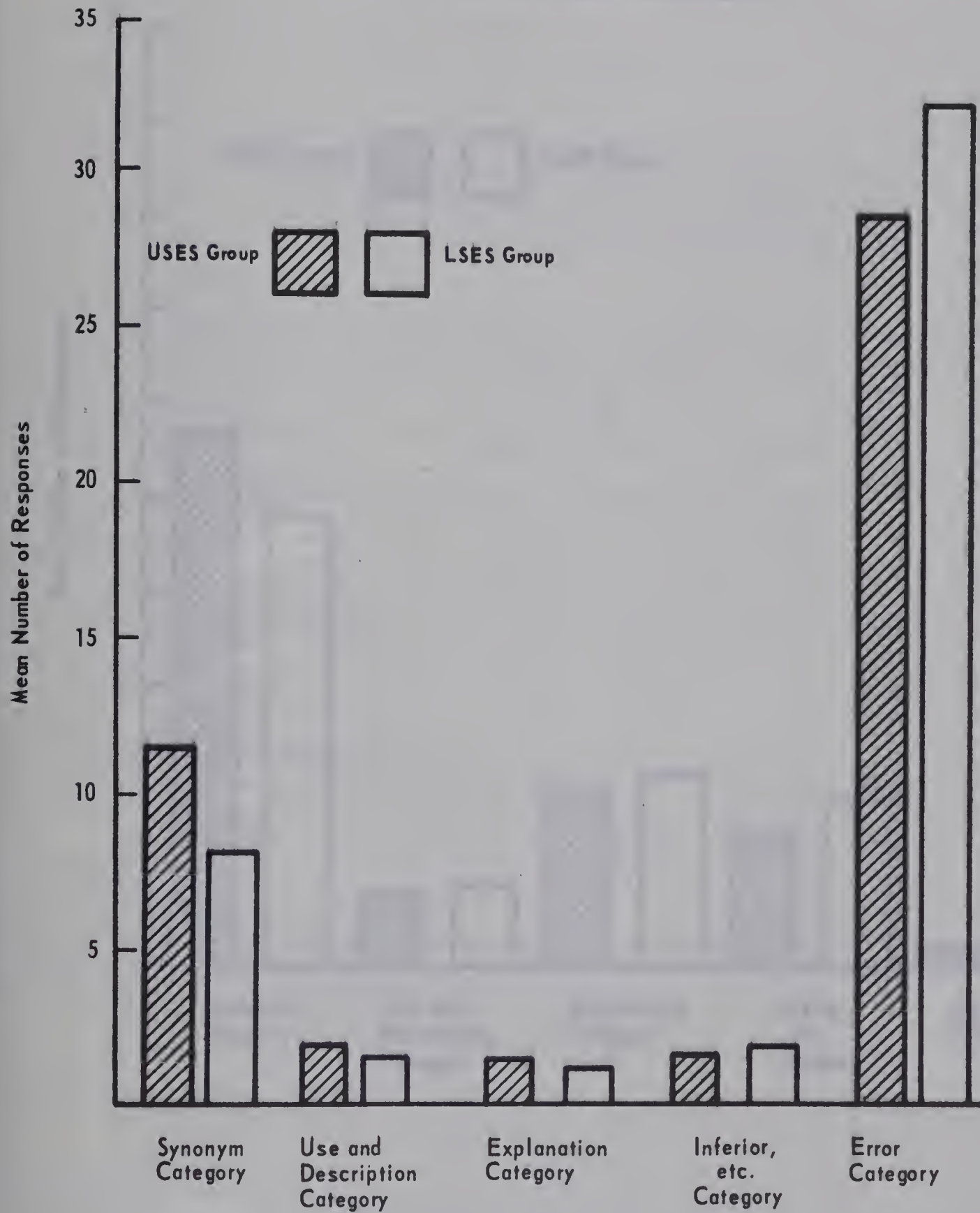






FIGURE 9

PERFORMANCE BY CATEGORY AS  
SHOWN BY QUALITATIVE ANALYSIS  
OF RECOGNITION VOCABULARY

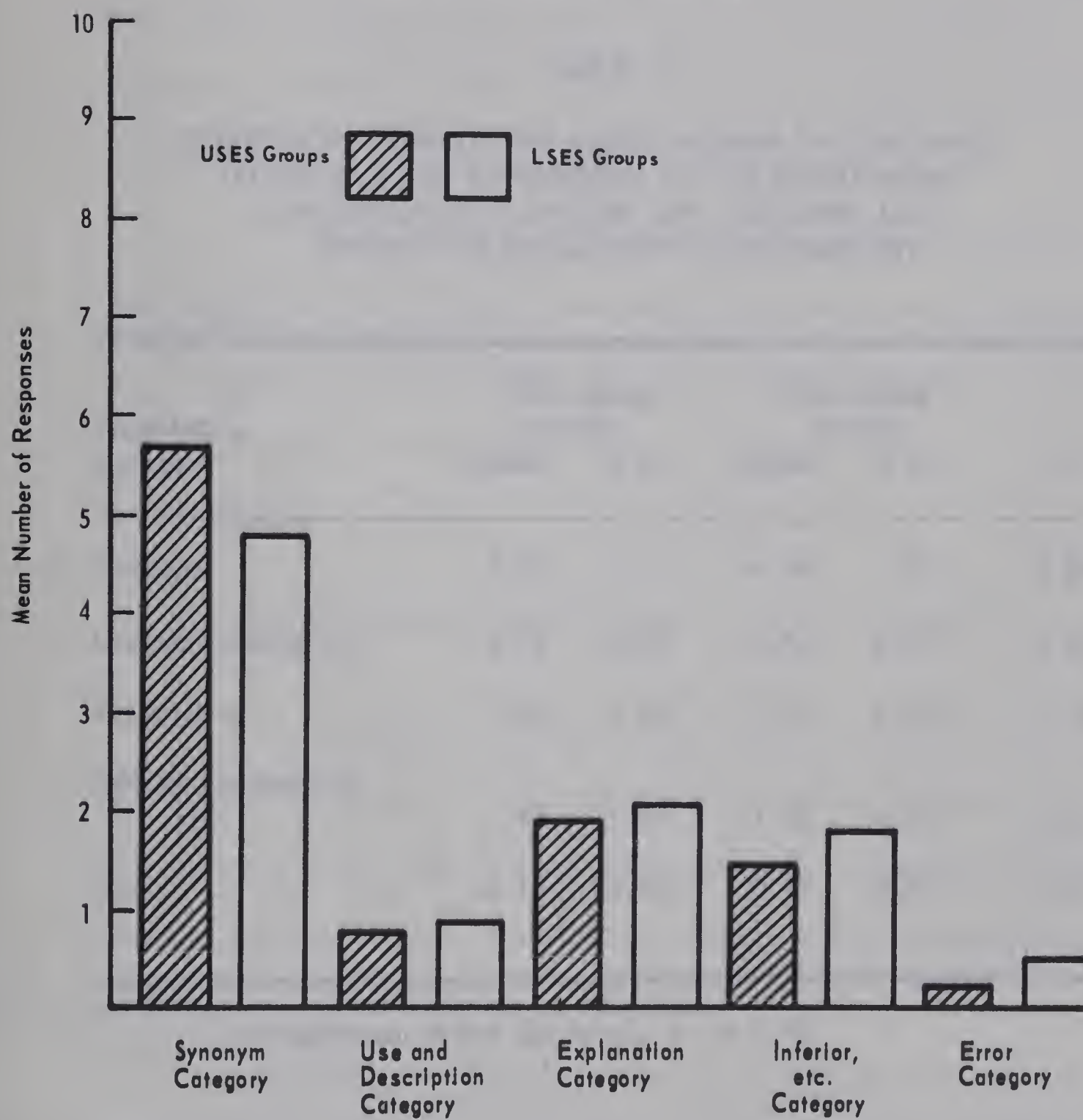




TABLE V

DIFFERENCES BETWEEN THE MEAN NUMBER OF RESPONSES  
IN EACH OF THE CATEGORIES OF THE QUALITATIVE  
CLASSIFICATION SYSTEM OF USES AND LSES  
GROUPS FOR RECOGNITION VOCABULARY

| Qualitative<br>Category      | USES Group<br>(N=78) |      | LSES Group<br>(N=77) |      | t       |
|------------------------------|----------------------|------|----------------------|------|---------|
|                              | Mean                 | S.D. | Mean                 | S.D. |         |
| Synonym                      | 5.57                 | 1.71 | 4.74                 | 1.86 | 2.86**  |
| Use and Description          | 0.78                 | 0.75 | 0.82                 | 0.69 | -0.35   |
| Explanation                  | 1.92                 | 1.32 | 2.17                 | 1.25 | -1.18   |
| Inferior Explanation<br>etc. | 1.47                 | 1.09 | 1.78                 | 1.30 | -1.62   |
| Error                        | 0.19                 | 0.43 | 0.49                 | 0.66 | -3.26** |

\*\*Significant at the .01 level,  $\chi > 2.33$





example, the mean number of responses for the USES group was 5.57 whereas the mean number of responses for the LSES group was 4.74. This difference is approaching significance at the .01 level of confidence. Figure 9 presents the mean distribution of responses by category for each group.

In the Error category, however, the exact reverse of this trend is found wherein the mean number of responses in this category for the USES group is 0.19 whereas, for the LSES group, the mean number of responses is 0.49. The difference in responses is significant at the .01 level of confidence in favour of the LSES group.

### III. INTERCORRELATIONS AMONG ALL OF THE VARIABLES

For the purposes of this study, the five-and one per cent levels of significance were accepted. With a sample size of 155 and 147 degrees of freedom, correlations of at least .19 and .25, respectively, were required to obtain these levels of significance. Correlations between recall vocabulary and all of the predictor variables are shown in Table VI.

According to the data given, the only factors which displayed no significant relationships with recall vocabulary were grades four and five, presence of both parents in the home, and sex.

The low positive correlation between the scores of recall vocabulary and absence of either parent in the home indicates that this particular questionnaire subtest is a rather insensitive indicator of the family relationships existing within the same population.



TABLE VI  
CORRELATIONS OF RECALL AND RECOGNITION  
VOCABULARY WITH ALL OF THE PREDICTOR  
VARIABLES

| N = 155  |                           |                      |
|--|---------------------------|----------------------|
| Predictor Variables Correlated with<br>Recognition and Recall Vocabulary | Recognition<br>Vocabulary | Recall<br>Vocabulary |
| Chronological Age  | .12                       | .27**                |
| Mental Age   | .52**                     | .77**                |
| Grade: Total   | .26**                     | .50**                |
| Grade I V  | -.20                      | -.37                 |
| Grade V  | -.06                      | -.12                 |
| Grade VI   | .26**                     | .49**                |
| Socioeconomic Status   | .37**                     | .52**                |
| Recall Vocabulary  | .52**                     | 1.00**               |
| Quantitative Vocabulary  | .52**                     | .52**                |
| Presence of Either Parent in the Home                                    | -.17                      | -.24                 |
| Absence of Either Parent in the Home                                     | .17*                      | .24*                 |

\*\*Significant at the .01 level,  $r > .25$

\*Significant at the .05 level,  $r > .13$



Recall vocabulary correlated closely with socioeconomic status, grade level, and recognition vocabulary. All were significantly related at the .01 level of confidence. In terms of grade level, indications are that a stage-dependent level of conceptualization exists wherein the highest levels of abstraction found among students' responses coincide with the highest grade level in the sample. In addition, the close correlation which exists between recall vocabulary and socioeconomic status reveals the role that social class plays in the young child's acquisition of a meaning vocabulary. The fact, too, that recall vocabulary and recognition vocabulary correlate closely displays the reliability of a multiple-choice type of test as a good indicator of abstract conceptual development in children.

Those variations which correlated most highly with recall vocabulary, however, were mental age and quantitative vocabulary. This finding is not unusual when we realize that recall vocabulary is only an elaborate version of the quantitative test. Furthermore, both tests are really a part of the Standord-Binet Intelligence Scale, Form L-M, a factor which serves to elucidate the interrelationships which exist between the quality and quantity of the young child's vocabulary and his intellectual potential.

In like manner to the conditions established for recall vocabulary, the five- and one per cent levels of significance were accepted for recognition vocabulary. Furthermore, with the same sample size of 155 and 147 degrees of freedom, correlations of at least .19 and .25, respectively, were required to obtain these levels of significance. Correlations between recognition and all of the predictor variables are shown in Table VI.





According to findings, the only variables which displayed little or no significant relationships with recognition vocabulary were chronological age, grades four and five, presence of both parents in the home, and sex.

The low, positive correlation between the scores of recognition vocabulary and the absence of either parent in the home indicates the inability of this particular variable to predict, with any degree of exactness, the relationship which exists between recognition vocabulary and home situation. Nevertheless, the presence of a positive correlation between the two variables does indicate that home background, especially the absence of one of the members of the family such as the mother or the father, does have a somewhat significant effect upon the quality of the child's recognition vocabulary.

Once again, significantly high correlations were established between recognition vocabulary and the variables of mental age, recall vocabulary, and quantitative vocabulary; a relationship akin to that established for recall vocabulary. The close correlations established between all three measures of vocabulary and mental age clearly indicates the presence of identical elements which exist between the development of word meanings and intellectual functioning. In fact, a reciprocal arrangement appears evident between the young child's knowledge of word meanings and his capacity to function intellectually.

A fairly high correlation was found to exist between the scores on the recognition vocabulary test and socioeconomic status. The fact that these correlated with one another at the .01 level of significance indicates that socio-



economic status plays a significant role in the child's ability to recognize words in context. In other words, a poor social class background evidently inhibits the development of an adequate sight vocabulary.

Total grade also correlated closely with recognition vocabulary but not to the same extent as recall vocabulary. The low, positive correlation found between recognition vocabulary and grade level indicates that the ability of the young child to recognize increasingly abstract definitions is a product of his intellectual and social maturity.

Mental Age. As indicated in Table VII, mental age correlated positively, at the one per cent level of significance, with total grade, grade six, socioeconomic status, quantitative vocabulary, and recognition vocabulary. A correlation approaching the one per cent level of significance was found between mental age and absence of either parent in the home.

Two of the highest correlations with mental age were those of quantitative vocabulary (0.77) and recognition vocabulary (0.53). As was previously mentioned, this was to be expected in light of the nature of the vocabulary tests and the close relationship that exists between conceptualizing ability and mental functioning. Moreover, high correlations were also found between mental age and total grade (0.53), and grade six (0.47), as well. However, this appears indicative of a natural growth in mental age through the grades and, therefore, is not an unusual phenomenon.





TABLE VII  
INTERCORRELATIONS AMONG VARIABLES

| N = 155                                   |      |        |       |        |       |       |        |        |        |       |        |       |        |
|---|------|--------|-------|--------|-------|-------|--------|--------|--------|-------|--------|-------|--------|
| Variable                                  | 1    | 2      | 3     | 4      | 5     | 6     | 7      | 8      | 9      | 10    | 11     | 12    | 13     |
| 1. Recall Vocabulary                      | 1.00 | 0.27** | 0.77* | 0.50** | -0.37 | -0.12 | 0.49** | 0.52** | 0.95** | -0.24 | 0.24*  | 0.00  | 0.52** |
| 2. Chronological Age                      |      | 1.00   | 0.22* | 0.79** | -0.69 | 0.03  | 0.67** | 0.14   | 0.23*  | -0.02 | 0.02   | 0.07  | 0.12   |
| 3. Mental Age                             |      |        | 1.00  | 0.53** | -0.44 | -0.02 | 0.47** | 0.51** | 0.77** | -0.22 | 0.22*  | -0.06 | 0.53** |
| 4. Grade: Total                           |      |        |       | 1.00   | -0.86 | 0.01  | 0.86** | 0.05   | 0.46** | -0.09 | 0.09   | 0.02  | 0.26** |
| 5. Grade IV                               |      |        |       |        | 1.00  | -0.51 | 0.49   | -0.04  | -0.32  | 0.09  | -0.09  | -0.02 | -0.20  |
| 6. Grade V                                |      |        |       |        |       | 1.00  | -0.50  | -0.00  | -0.14  | -0.03 | 0.03   | 0.02  | -0.06  |
| 7. Grade VI                               |      |        |       |        |       |       | 1.00   | 0.05   | 0.47** | -0.06 | 0.06   | 0.00  | 0.26** |
| 8. Socioeconomic Status                   |      |        |       |        |       |       |        | 1.00   | 0.55** | -0.47 | 0.47** | -0.00 | 0.38** |
| 9. Quantitative Vocabulary                |      |        |       |        |       |       |        |        | 1.00   | -0.24 | 0.24*  | 0.02  | 0.52** |
| 10. Presence of Either Parent in the Home |      |        |       |        |       |       |        |        |        | 1.00  | -1.00  | 0.06  | 0.17*  |
| 11. Absence of Either Parent in the Home  |      |        |       |        |       |       |        |        |        |       | 1.00   | -0.00 | 0.17*  |
| 12. Sex: Female                           |      |        |       |        |       |       |        |        |        |       |        | 1.00  | 0.08   |
| 13. Recognition Vocabulary                |      |        |       |        |       |       |        |        |        |       |        |       | 1.00   |

\*\*Significant at the .01 level,  $r > .25$ .

\*Significant at the .05 level,  $r > .13$ .



Another significant correlation with mental age was that of socioeconomic status (0.51). As expected, factors appeared to be operative such that, as the level of socioeconomic status increased, so did the mean mental age of the subjects in general. Utilizing a two-tailed "t" test, the mean score for the USES group in terms of mental age was 169.57, for the LSES group, 147.04. In terms of socioeconomic status, the mean score for the USES group was 72.75 whereas the mean score for the LSES group was 38.27. Table III shows the means and standard deviations for both groups. However, one must take note of the fact that, in dealing with mean scores, individual differences tend to be obscured and probably overlooked (Deutsch, 1964). That is to say, many of the mental ages were high in relation to their corresponding chronological ages, irrespective of social class status, even though the means did establish a definite significant relationship between the USES group and the LSES group.

Grade Level. In terms of grade level, significant correlations established were those found between quantitative vocabulary recognition vocabulary, recall vocabulary, mental age and chronological age. Evidently, the young child's ability to select and utilize abstract meanings proceeds along a continuum from the concrete to the abstract; a continuum which reaches its highest gradient at the upper elementary school level. This finding is in agreement with Piaget's formulations concerning the stage-dependent aspects of the young child's intellectual development (Inhelder and Piaget, 1958).





Socioeconomic Status. The correlation between socioeconomic status and absence of either parent in the home was significant beyond the one per cent level of confidence. Ostensibly, both were highly related and the fact that the 'absence' variable was found only in the LSES group may have depressed the SES score to a significant degree.

Socioeconomic status also correlated highly with the three measures of vocabulary; a finding which points to the role that home environment plays in the development of word meanings in the young child. In all cases, the correlations were significant beyond the one per cent level of confidence.

Presence or Absence of Either Parent in the Home. Both variables (presence or absence) correlated with recognition vocabulary at the five per cent level of confidence. The fact that both parents were present in the home did not correlate significantly with any of the other variables. However, the fact that one or both of the parents was absent from the home correlated significantly with socioeconomic status at the one per cent level of confidence and with mental age and quantitative vocabulary at the five per cent level of confidence. These findings are interesting from the standpoint of illuminating the effect that the disrupted home has on educational performance. However, more substantial information than that which was supplied by this variable is needed before substantial conclusions can be drawn about the effects of parental absence upon the child's cognitive functioning.





Sex. Neither sex appeared to have any significant effect on the other variables in the study. This is contrary to the findings of Labensohn (1967) and others. However, many external factors undoubtedly impinged upon test results in this regard. Just exactly what those factors are is difficult to determine. Further research appears warranted in this area.

#### IV. REGRESSION ANALYSIS USING ALL OF THE VARIABLES

Multiple linear regression analysis was utilized to ascertain the contribution of each variable as a predictor of vocabulary development. This was accomplished by restricting each variable in turn from the full models, the results of which are presented in Tables VIII, IX and X. It is important to note that the contribution of a particular variable to the variance of scores on the criterion has meaning only in the presence of the other variables included in the regression equation.

Hypothesis 2. In the presence of the other variables, there is no significant contribution to the variance of scores on the recall vocabulary test due to the variance of scores on socioeconomic status, recognition vocabulary, chronological age, mental age, presence or absence of either parent in the home, sex and grade.

With three exceptions, the null hypothesis was accepted. This means that such variables as sex (female), total grade, chronological age, and absence



TABLE VIII  
CONTRIBUTION OF VARIABLES WITH RECALL  
VOCABULARY AS CRITERION

| N = 155<br>Restriction                  | RSQ<br>Full | RSQ<br>Restricted | df    | F-Ratio |
|---|-------------|-------------------|-------|---------|
| Sex: Female                             | 0.6546      | 0.6543            | 1/147 | 0.12    |
| Grade: Total                            | 0.6546      | 0.6510            | 1/147 | 1.63    |
| Mental Age                              | 0.6546      | 0.5510            | 1/147 | 44.14** |
| Chronological Age                       | 0.6546      | 0.6527            | 1/147 | 0.81    |
| Socioeconomic Status                    | 0.6546      | 0.6282            | 1/147 | 11.23** |
| Recognition Vocabulary                  | 0.6546      | 0.6437            | 1/147 | 4.63*   |
| Absence of Either Parent<br>in the Home | 0.6546      | 0.6545            | 1/147 | 00.04   |

\*\*Significant at the .01 level.

\*Significant at the .05 level.





TABLE IX  
CONTRIBUTIONS OF VARIABLES WITH QUANTITATIVE  
VOCABULARY AS CRITERION

| N = 155<br>Restriction                  | RSQ<br>Full | RSQ<br>Restricted | df    | F-Ratio |
|---|-------------|-------------------|-------|---------|
| Sex: Female                             | 0.6554      | 0.6542            | 1/147 | 0.51    |
| Grade: Total                            | 0.6554      | 0.6540            | 1/147 | 0.56    |
| Mental Age                              | 0.6554      | 0.5412            | 1/147 | 48.71** |
| Chronological Age                       | 0.6554      | 0.6535            | 1/147 | 0.78    |
| Socioeconomic Status                    | 0.6554      | 0.6242            | 1/147 | 13.29** |
| Recognition Vocabulary                  | 0.6554      | 0.6457            | 1/147 | 4.12*   |
| Absence of Either Parent<br>in the Home | 0.6554      | 0.6552            | 1/147 | 0.07    |

\*\*Significant at the .01 level.

\*Significant at the .05 level.



TABLE X

CONTRIBUTIONS OF VARIABLES WITH RECOGNITION  
VOCABULARY AS CRITERION

| N = 155<br>Restriction                  | RSQ<br>Full | RSQ<br>Restricted | df    | F-Ratio |
|---|-------------|-------------------|-------|---------|
| Sex: Female                             | 0.3264      | 0.3163            | 1/147 | 2.22    |
| Grade: Total                            | 0.3264      | 0.3257            | 1/147 | 0.17    |
| Mental Age                              | 0.3264      | 0.2934            | 1/147 | 7.20**  |
| Chronological Age                       | 0.3264      | 0.3262            | 1/147 | 0.06    |
| Socioeconomic Status                    | 0.3264      | 0.3222            | 1/147 | 0.91    |
| Recall Vocabulary                       | 0.3264      | 0.3053            | 1/147 | 4.61*   |
| Absence of Either Parent<br>in the Home | 0.3264      | 0.3264            | 1/147 | 0.00    |

\*\*Significant at the .01 level.

\*Significant at the .05 level.



of either parent in the home did not contribute significantly to the regression equation predicting students' recall vocabulary. That is to say, a knowledge of these variables did not add to the ability to predict recall vocabulary.

However, both mental age and socioeconomic status predicted recall vocabulary at the .01 level of confidence. Table VIII shows the contribution of all the variables to the prediction of recall vocabulary.

Hypothesis 3. In the presence of the other variables, there is no significant contribution to the variance of scores on the quantitative vocabulary test due to the variance of scores on socioeconomic status, recognition vocabulary, sex, grade, mental age, chronological age, and presence or absence of either parent in the home.

Table IX shows that the F value of 48.71 calculated between the unrestricted and the restricted model, in which mental age was deleted, has a probability of less than .01. The chances that such a reduction in the error sum of squares would occur when there is no difference in the population are less than one in one hundred. Hence, the null hypothesis was rejected and mental age scores contributed significantly to the variance of quantitative vocabulary scores, when cognizance was taken of the effects of socioeconomic status recognition vocabulary, sex, grade, chronological age, and the presence or absence of either parent in the home. In other words, mental age and quantitative vocabulary are good predictors of one another.





Socioeconomic status, as well, contributed significantly to the variance of quantitative vocabulary scores when the other variables were taken into account. The F value of 13.29, calculated between the unrestricted and the restricted model in which socioeconomic status was deleted, has a probability of less than .01.

Recognition vocabulary, along with the two foregoing variables, contributed significantly to the variance of quantitative vocabulary scores at the .05 level of confidence when the other variables were taken into account. This finding reveals that, although there are definite similarities between the two kinds of vocabulary, their disparate elements must also be taken into account. That is to say, differing qualitative levels of vocabulary are present in varying degrees in each child. Hence, recognition vocabulary is a distinct kind of vocabulary from that of recall vocabulary.

Hypothesis 4. In the presence of the other variables, there is no significant contribution to the variance of scores on the recognition vocabulary test due to the variance of scores on socioeconomic status, sex, grade, mental age, chronological age, recall vocabulary, presence or absence of either parent in the home. Table X shows the contribution of the variables to the prediction of recognition score.

As in the case of the foregoing hypothesis, mental age scores once contributed significantly to the variance of scores of the criterion variable. In this case, the F value of 7.20 calculated between the unrestricted and the



restricted model, in which mental age was deleted, had a probability of less than .01. However, the F value was not nearly as great in this instance as that which was found between mental age and quantitative vocabulary. Hence, despite the fact that the null hypothesis for recognition vocabulary was rejected, the differences were not of the same order of significance as in the case of quantitative vocabulary. Therefore, it seems logical to presume that quantitative vocabulary is a better predictor of mental age than recognition vocabulary. Suffice it is to say that recognition vocabulary is a significant predictor of mental age when the other variables are taken into account.

Recall vocabulary also contributed significantly to the prediction of scores in the case of recognition vocabulary. The F value of 4.61, calculated between the unrestricted and the restricted model in which recall vocabulary was deleted, has a probability of less than .05. Hence, it seems logical to presume that recall vocabulary scores are good predictors of recognition vocabulary scores. The converse of this finding was also borne out in Table VIII.

Perhaps the most interesting finding of the study was that socio-economic status did not contribute significantly to the variance of recognition vocabulary scores, even when cognizance was taken of the effects of recall vocabulary, sex, grade, chronological age, mental age, and presence or absence of either parent in the home. This seems to indicate that for some underprivileged children, recognition vocabulary is superior to recall vocabulary. In other words,





their ability to recognize words within a given context is greater than their ability to recall the meanings of words in isolation.

## VII. SUMMARY OF RESULTS

1. In comparing the two groups, significant differences beyond the .01 level of confidence were found on all variables favoring the USES group.
2. No sex differences were found on recognition and recall vocabulary scores for either USES or LSES groups.
3. In comparing the two groups for both recall and recognition vocabulary scores, the USES group gave a significantly higher number of abstract responses compared to the LSES group. The differences were significant beyond the .01 level of confidence.
4. By way of contrast, the LSES group gave a significantly higher number of error type responses than the USES group for both recall and recognition vocabulary. As in the previous case, the differences were significantly beyond the .01 level.
5. For the total sample, both recognition and recall vocabulary correlated highly with quantitative vocabulary and with mental age. The differences were significant beyond the .01 level.



6. For the total sample, recall vocabulary also correlated closely with socioeconomic status, grade level and recall vocabulary. These correlations were significant beyond the .01 level of confidence.
7. For the total sample, recall vocabulary correlated with absence of either parent in the home at the .05 level of confidence.
8. For the total sample, recognition vocabulary correlated highly with socioeconomic status, grade level and recall vocabulary. These correlations were significant beyond the .01 level.
9. For the total sample, all three measures of vocabulary (recall, quantitative and recognition) were significant predictors of one another at the .05 level of confidence.
10. For the total sample, the variable associated with absence of either parent from the home had a low positive correlation with all three measures of vocabulary and with mental age as well as grade level.
11. For the total sample, the variable designated to assess presence or absence of either parent in the home proved to be a redundant variable in terms of socioeconomic status as both were ostensibly measuring the same thing.



12. For the total sample, socioeconomic status correlated highly with all variables except grade level, sex and chronological age.
13. For the total sample, all three vocabulary scores proved to be significant predictors of mental age scores at the .01 level of confidence.
14. For the total sample, socioeconomic status scores did not significantly predict recognition vocabulary scores.

#### VIII. SUMMARY OF THE CHAPTER

This chapter has presented the findings of the study. The means and standard deviations of the scores of each variable for the total sample were examined first of all to determine areas of difference among the variables. Next, the mean scores of both groups were compared to determine whether the groups were significantly different. Following this, intercorrelations among all the variables were examined. Finally, multiple linear regression analysis was used to assess the effects of the variables on recognition and recall scores for the total sample.





## CHAPTER V

### SUMMARY, CONCLUSIONS, IMPLICATIONS

The young child comes to the school environment where language plays an increasingly important role in relation to communication and learning . Innumerable factors have influenced his language development; factors such as the socioeconomic level of the child's environment, the attitude of the home towards the school, the attitude of the parents towards language, and the child's mental and chronological age . If the child's experiences in the school are to be of maximum benefit to him, it is important that educators know the extent of these influences as they affect his language development .

#### 1. PURPOSE OF THE STUDY

The study examined the effects of socioeconomic status on one aspect of the language of upper elementary school children, measured in three different ways: recognition, recall, and quantitative vocabularies . The sample consisted of 155 children representing differing levels of socioeconomic status . The whole sample was analyzed for the purpose of finding significant differences in mental age, recognition vocabulary score, recall vocabulary score, and to see whether the presence or absence of either parent in the home had any effect on either or both vocabulary scores . In addition, the total sample was divided into a low



socioeconomic group and a high socioeconomic group and the groups were then compared for significant differences utilizing the same variables as those for the total sample. Each group was then examined to see if the variables contributed significantly to the prediction of recognition and recall scores.

## II. PROCEDURE

Socioeconomic status was measured by combining the ratings of Blishen's (1961) Canadian Occupational Scale and Elley's (1961) revision of the Gogh Home Index Scale for upper elementary school in six schools. The schools selected represented differing levels of socioeconomic status.

The vocabulary subtest of the Stanford-Binet Intelligence Scale, Form L-M was administered as an oral test to measure recall vocabulary and a modified form of the same test composed of a multiple-choice test using ten selected words, was introduced as a measure of recognition vocabulary. The definitions given in both tests were classified according to a five-fold system devised by Feifel (1949). Numerical values were assigned to each category of the classification system so that a recall and a recognition score was available for each subject.

The Otis Self-Administering Tests of Mental Ability, Intermediate Form was administered as a measure of mental age.

The total sample was examined to see if significant differences existed between such factors as socioeconomic status, Otis score, recall score,





recognition score, and absence of either parent in the home. Multiple linear regression models were used to determine whether the variables contributed significantly to the prediction of recognition and recall scores of the total sample; a sample which represented varying levels of socioeconomic status. In addition, the total sample was divided into an upper and a lower socioeconomic group. The two groups formed were then compared utilizing the same variables as those for the total sample to see if significant differences existed between the groups in terms of these variables.

### III. FINDINGS

1. In comparing the two groups, significant differences were found between the two groups beyond the .01 level of confidence on all variables: mental age scores of the Otis Self-Administering Tests of Mental Ability, Intermediate Examination, recognition vocabulary scores, recall vocabulary scores, quantitative vocabulary scores, and the number of recall and recognition responses in two of the categories of the qualitative scale.
2. No sex differences were discovered in terms of recall or recognition vocabulary scores for either USES or LSES groups.



3. In comparing the two groups for both recall and recognition vocabulary, the USES group gave a significantly higher number of abstract responses compared to the LSES group. The differences were significant beyond the .01 level of confidence.
4. Conversely, the LSES group gave a significantly higher number of Error type responses than the USES group for both recall and recognition vocabulary. As in the previous case, the differences were significant beyond the .01 level.
5. For the total sample, both recognition and recall vocabulary correlated highly with quantitative vocabulary and with mental age beyond the .01 level.
6. For the total sample, recall vocabulary also correlated closely with socioeconomic status, grade level and recall vocabulary. These correlations were significant beyond the .01 level of confidence.
7. Recall vocabulary correlated with absence of either parent in the home at the .05 level of confidence.
8. For the total sample, recognition vocabulary correlated highly with socioeconomic status, grade level, and recall vocabulary. These correlations were significant beyond the .01 level.



9. For the total sample, all three measures of vocabulary (recall, quantitative, and recognition) were significant predictors of one another at the .05 level.
10. For the total sample, the variable associated with absence of either parent from the home had a positive correlation with all three measures of vocabulary and with both mental age and grade level. These correlations were significant beyond the .05 level.
11. For the total sample, the variable designed to assess presence or absence of either parent in the home proved to be a redundant variable in terms of socioeconomic status since both were ostensibly measuring the same thing.
12. For the total sample, socioeconomic status correlated highly with all the variables except grade level, sex and chronological age.
13. For the total sample, all three vocabulary scores proved to be significant predictors of mental age scores at the .01 level of confidence.
14. For the total sample, socioeconomic status scores did not significantly predict recognition vocabulary scores.





#### IV. CONCLUSIONS AND IMPLICATIONS

1. In comparing the two groups, it was found that both recognition and recall vocabulary scores of the LSES group were significantly lower than that of the USES group. This appears to indicate that lower socioeconomic status children operate at a lower level of conceptualization than do upper socioeconomic status children.
2. In examining the three middle categories of the qualitative scale for both recognition and recall vocabulary, the USES group showed an increasing progression toward the more abstract kind of response whereas the LSES group, on the other hand, displayed an increasing regression toward the more concrete and relatively inferior kinds of response. Evidently, for the USES group, the three middle categories displayed responses determined largely by age. However, for the LSES group, the findings tend to lend support to the "cumulative deficit phenomenon" hypothesized by Deutsch (1965, p. 80).
3. In looking at the two groups, the USES group showed a significantly higher mean number of responses in the Synonym category, the highest category of the qualitative scale. The LSES group, on the other hand, displayed a significantly higher number of responses in the Error category. The findings, in terms of the



Synonym category, indicate that there is a level of conceptualization not present to its fullest extent in children from lower social class levels. In its place we find usage of words which are inexact and, in the majority of cases, incorrect in terms of their defining qualities.

4. In looking at the total sample, the following variables correlated highly with each other: recognition score, recall score, quantitative score, mental age score, socioeconomic status score, and absence of either parent from the home score. Seemingly, many factors tend to interact in the intellectual and social development of the young child. For one, results indicate that both recognition and recall vocabularies are two highly related language functions for children at this level of schooling. Furthermore, the fact that the child's ability to recognize and use words is highly related to his intellectual potential points to the close relationship that exists between the child's store of word meanings and his ability to function intellectually. Added to all of this is the effect that socioeconomic status and home background have on the development of verbal skills and cognitive functioning.
5. For the total sample, all three measures of vocabulary were found to be good predictors of one another. It would appear,





then, that both recognition and recall vocabulary are two highly related language functions for children at this age.

6. For the total sample, recognition vocabulary scores were relatively unaffected by socioeconomic status scores. It thus appears that recognition score is independent of socioeconomic status and that the child's ability to recognize words within a given context is more sophisticated than his ability to define words at higher levels of conceptualization. This seems especially true for the lower socioeconomic status child.
7. No sex differences were found, either in terms of the USES or the LSES group. Nor were any sex differences discovered when the sample population was examined as a total group. Evidently, the effect that sex has on group performance in test situations must be dependent upon external factors which were not revealed in the present study.

## VI. SUGGESTIONS FOR FURTHER RESEARCH

1. Further research into the exact nature of social class and its subsequent effects upon educational achievement seems warranted in the light of the findings. In this regard, interaction of the



child's home background with the school environment warrants further study .

2. The general premise that the educational handicaps observed in the socially disadvantaged can be overcome through appropriate school experiences is generally well-documented in psychological and social theory . However, the question is how best to bring about these experiences . What is required at the moment are sound research evaluations of existing programs of compensatory education . The Review of Educational Research (1965) lists a number of criteria in evaluating such programs . They are as follows:
  - a) Precise description of the educational experiences involved .
  - b) Clear formulations of hypotheses concerning the effects of specified and controlled programmatic activities .
  - c) Definition of appropriate tests of such hypotheses .
  - d) Collection and interpretation of relevant data through technically adequate procedures .
3. Most accounts of conceptual development of the young child are predicated upon an implicit or explicit comparison with a presumed developmental schedule of children without deprivation . Studies need to be carried out to catalogue



the development of culturally deprived children in different samples.

4. The critical period hypothesis has been related to perceptual and cognitive development of the child. This hypothesis needs further testing by means of developmental studies, longitudinal studies, and other means.
5. Since the child's attitude toward language appears to be a function of the life style of the home environment, more information needs to be gathered about the processes by which the child's language development is influenced and controlled by persons in his immediate environment.
6. One of the findings of this study was that the recognition vocabulary of the culturally deprived child is in some ways superior to his recall vocabulary. Further research is necessary to discover the exact nature of the differences between these two kinds of vocabulary and to see what other kinds of vocabulary relate to class structures.
7. Since the cumulative deficit phenomenon suggested by Deutsch is partially substantiated by the findings, a developmental study appears warranted in order to ascertain what kinds of language experiences will provide optimal advantage in overcoming the handicaps incurred by cultural factors.





8. As a large proportion of the child's acquisition of modes of speech is gained from the home, research is needed which will examine the apparent alienation between the culturally deprived home environment and the school culture. In this respect, such considerations as parental attitudes toward the school as an institution for learning, cultural expectations towards language learning, and the role of the home and school in the culturally deprived community, among others appear to be areas of fruitful inquiry.
9. Bernstein (1965) postulates the existence of two types of restricted codes. One type is predicated upon lexical prediction while the other is concerned with syntactic prediction. Since Bernstein sees the restricted code as a mode of speech peculiar to the lower classes, research needs to be carried out which will examine the relationship of lexical prediction to syntactic prediction in terms of the restricted code.



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## APPENDICES



## APPENDIX A

### HOME INDEX QUESTIONNAIRE

|    |                                       |      |     |
|----|---------------------------------------|------|-----|
| 1  | Living space (rooms) (sq. ft.)        | 1000 | 100 |
| 2  | Cost of rent (monthly) (\$)           | 1000 | 100 |
| 3  | Cost of utilities (monthly) (\$)      | 1000 | 100 |
| 4  | Cost of food (monthly) (\$)           | 1000 | 100 |
| 5  | Cost of clothing (monthly) (\$)       | 1000 | 100 |
| 6  | Cost of entertainment (monthly) (\$)  | 1000 | 100 |
| 7  | Cost of transportation (monthly) (\$) | 1000 | 100 |
| 8  | Cost of health care (monthly) (\$)    | 1000 | 100 |
| 9  | Cost of education (monthly) (\$)      | 1000 | 100 |
| 10 | Cost of other (monthly) (\$)          | 1000 | 100 |



## HOME INDEX SCALE

1. Name: \_\_\_\_\_  
(Last Name) (First Name)
2. Father's Occupation: \_\_\_\_\_  
(Be clear: For example: Sales clerk at Eatons, door-to-door salesman for Fuller-Brush, travelling salesman for Massey-Ferguson)
3. Mother's Occupation: \_\_\_\_\_
4. Do you ever use a language other than English in your home? \_\_\_\_\_  
If you do, (a) Name it here: \_\_\_\_\_  
(b) Circle the word which tells how often you use it:  
Hardly ever      Quite often      Most of the time
5. About how long have you lived in Canada? \_\_\_\_\_

**DIRECTIONS:**

In the following questions, mark your answer by putting a circle in the right place. For example, in the question "Does your family have a car?" draw a circle around the "Yes" if your family does have a car, and around the "No" if it does not. Be sure to answer all the questions.

- |    |   |     |    |
|----|---|-----|----|
| 1. | Does your family own a car? .....               | Yes | No |
| 2. | Does your family have a garage or carport ..... | Yes | No |
| 3. | Did your father go to high school? .....        | Yes | No |
| 4. | Did your mother go to high school? .....        | Yes | No |
| 5. | Did your father go to university? .....         | Yes | No |
| 6. | Did your mother go to university? .....         | Yes | No |





- |     |  |     |    |
|-----|--|-----|----|
| 7.  | Is there a writing desk in your home? .....  | Yes | No |
| 8.  | Does your family have a Hi-Fi or record player? .....  | Yes | No |
| 9.  | Does your family have a piano? .....   | Yes | No |
| 10. | Does your family get a daily newspaper? .....  | Yes | No |
| 11. | Do you have your own room at home? .....   | Yes | No |
| 12. | Does your family own its home? .....   | Yes | No |
| 13. | Is there an encyclopedia in your home? .....   | Yes | No |
| 14. | Does your family have more than 100 hardcover books?<br>(4 shelves: 3 feet long) .....                     | Yes | No |
| 15. | Did your parents borrow any books from the library in<br>the last year? .....                              | Yes | No |
| 16. | Does your family leave town each year for a holiday? ....  | Yes | No |
| 17. | Do you belong to any club where you have to pay fees? ....   | Yes | No |
| 18. | Does your mother belong to any clubs or organizations<br>such as study, church, art or social clubs? ..... | Yes | No |
| 19. | Does your father belong to any such clubs or<br>organizations? .....                                       | Yes | No |
| 20. | Have you ever had lessons in music, dancing, art,<br>swimming, etc., outside of school? .....              | Yes | No |



APPENDIX A

LIST OF WORDS IN RECALL TEST

APPENDIX B

LIST OF WORDS IN RECALL TEST





VOCABULARY SUBTEST OF THE STANFORD-BINET

INTELLIGENCE SCALE, FORM L-M

- |              |                      |                  |
|--------------|----------------------|------------------|
| 1. orange    | 16. haste            | 31. frustrate    |
| 2. envelope  | 17. peculiarity      | 32. flaunt       |
| 3. straw     | 18. priceless        | 33. incrustation |
| 4. puddle    | 19. regard           | 34. retroactive  |
| 5. tap       | 20. tolerate         | 35. philanthropy |
| 6. gown      | 21. disproportionate | 36. piscatorial  |
| 7. roar      | 22. lotus            | 37. milksop      |
| 8. eyelash   | 23. shrewd           | 38. harpy        |
| 9. Mars      | 24. mosaic           | 39. depredation  |
| 10. juggler  | 25. stave            | 40. perfunctory  |
| 11. scorch   | 26. bewail           | 41. achromatic   |
| 12. lecture  | 27. ochre            | 42. casuistry    |
| 13. skill    | 28. repose           | 43. homunculus   |
| 14. brunette | 29. ambergris        | 44. sudorific    |
| 15. muzzle   | 30. limpet           | 45. parterre     |



## APPENDIX C

### EXAMPLES OF RECALL RESPONSES



## EXAMPLES OF RECALL RESPONSES AND THEIR CLASSIFICATION

### ORANGE

#### Synonym Category

|   |  |
|---|--|
| Synonym unmodified                      | It's a fruit; a fruit .  |
| Synonym modified by use                 | A fruit that you eat .   |
| Synonym modified by description         | It's a fruit and it's round and it grows on trees .                  |
| Synonym modified by use and description | It's a citrus fruit , it's grown in a tree and it's a orange color . |

#### Use, Description, and Use and Description Category

|                     |  |
|---------------------|--|
| Use                 | Well you can eat it .  |
| Description         | It's got a peel around it and inside it's got juice . It's orange .            |
| Use and description | It has seeds and it has juice . . . well it's round . . . and you can eat it . |

### ENVELOPE

#### Synonym Category

|   |  |
|---|--|
| Synonym unmodified                      | It's a white package; a container  |
| Synonym modified by use                 | Well it's a piece of paper to put a letter in . Something you put letters in . |
| Synonym modified by use and description | A sort of a piece of paper all folded up in which you enclose a letter         |





Use, Description, and Use and Description Category

|                     |   |
|---------------------|---|
| Use                 | Well you put letters in it.                                       |
| Use and Description | It's a piece of paper hooked together and you put a letter in it. |

Demonstration, Repetition, Illustration and Inferior Explanation Category

|                      |                       |
|----------------------|-----------------------|
| Inferior explanation | A letter for sending. |
|----------------------|-----------------------|

## STRAW

Synonym Category

|   |   |
|---|---|
| Synonym unmodified                      | Hay.  |
| Synonym modified                        | Dry grass, or dry hay.  |
| Synonym modified by use and description | It's a tube used for sucking up liquids, . . . it's made of paper or plastic . . . and it's usually colored or striped. |

Use, Description, and Use and Description Category

|                     |  |
|---------------------|--|
| Use                 | It is used in some beds and horses eat it.                     |
| Description         | It's a piece, a long piece of paper with a hole in the middle. |
| Use and description | Horses eat this straw and it's yellow.                         |

Explanation Category

|             |   |
|-------------|---|
| Explanation | It's part of the grain that's dried and kept for feeding animals. |
|-------------|---|



## PUDDLE

### Synonym Category

Synonym modified by description      A very small pool of water.

### Use, Description, and Use and Description Category

Use      You can wade in a puddle.

Description      Well it could be a mud puddle;  
there's water and dirt in it.

### Explanation Category

Explanation      After it rains it's left on streets  
and ditches where water hasn't  
been able to run off.

### Demonstration, Repetition, Illustration and Inferior Explanation Category

Inferior Explanation      Something you can get all dirty in.

## TAP

### Synonym Category

Synonym unmodified      When you knock. The faucet.

Synonym modified by use      Something that water comes out of.  
A sort of fixture that your water  
comes out of.

Synonym modified by  
description      A valve which causes a flow of  
water from the water tank to the  
faucet; to tap a tree - you cut a  
V-shape thing in the bark which  
causes the rubber to flow out.

Synonym qualified as to degree      To hit something lightly.  
To touch lightly.





Use, Description, and Use and Description Category

|                     |  |
|---------------------|--|
| Use                 | It gives water that you can drink .  |
| Description         | A place where water comes out of .   |
| Use and Description | It's a metal piece which you turn hot or cold water on with and you could wash your face and hands with it . |

Demonstration, Repetition, Illustration and Inferior Explanation Category

|                       |                                      |
|-----------------------|--------------------------------------|
| Repetition            | Well you can tap with your fingers . |
| Illustration          | Like you tap your foot with a shoe . |
| <u>Error Category</u> |                                      |
| Error                 | Like you bang something .            |

## GOWN

Synonym category

|   |  |
|---|--|
| Synonym unmodified                      | Dress; clothing .                                      |
| Synonym modified by use                 | It's a sort of a dress or something that ladies wear . |
| Synonym modified by description         | A long dress . A real beautiful long dress .           |
| Synonym modified by use and description | It's a long dress you wear on special occasions .      |

Use, Description, and Use and Description Category

|             |                                  |
|-------------|----------------------------------|
| Use         | A gown is to wear .              |
| Description | It is usually made out of silk . |



Use and Description

They are quite long and people used to wear them to balls.

Demonstration, Repetition, Illustration and Inferior Explanation Category

Repetition

A gown, a wedding gown.

Illustration

It's like a nightgown or wedding gown

Inferior explanation

It's sort of a cloak.

ROAR

Synonym Category

Synonym unmodified

It's a noise.

Synonym modified by description

Like it's a loud noise cars and trucks make. A lion roars.

Synonym qualified as to degree

It's a very loud noise. It's a loud growl.

Explanation Category

Explanation

Like lions roar and that sort of thing.

Demonstration, Repetition, Illustration and Inferior Explanation Category

Repetition

A lion's roar.

Error Category

Error

It means out loud; drunk.

EYELASH

(The child was asked to point if it was not clear from his response that he had differentiated eyelash from eyelid or eyebrow.)



Synonym Category

Synonym modified by use

Something that protects your eyes .

Synonym modified by description

A set of hairs just above the eye  
on the eyelid .Synonym modified by use and  
descriptionWell I guess it's hairs sort of and  
it's above your eye on your eyelid;  
it sort of protects your eyes from  
sand and dust .Use , Description , and Use and Description Category

Use

An eyelash protects your eye .

Description

It's on your eyelid .

Use and Description

It comes out from the eye; it  
overlaps the eye and it helps to  
keep out dust , screen things  
away from itDemonstration , Repetition , Illustration and Inferior Explanation Category

Inferior Explanation

Sometimes it blinks .

Error Category

Error

A person has an eyelash on their  
forehead .

## MARS

Synonym Category

Synonym unmodified

A planet .

Synonym modified by description

Mars is the fourth planet in our solar  
system , about twice as far as we are  
from the sun . It was named after  
the Roman God of War .





Use, Description, and Use and Description Category

Description

It's close to the sun.

JUGGLER

Synonym Category

Synonym unmodified

A sort of an acrobat.

Synonym modified by description

He's a person who balances balls or clubs. He throws them up in the air and catches them one by one by throwing them back into the air as he catches them.

Explanation Category

Explanation

That means tossing them up in the air, mixing them around, catching them.

Demonstration, Repetition, Illustration and Inferior Explanation Category

Repetition

It's a guy that juggles things.

Error Category

Wrong Definition

It's a guy who jugs things.

SCORCH

Synonym Category

Synonym unmodified

To burn

Synonym qualified as to degree

It isn't quite burnt.

Use, Description, and Use and Description Category

Description

Well, it's sort of hot; sort of like you scorch the lining.



Explanation Category

## Explanation

When you iron and she or he accidentally leaves an iron on a piece of clothing so it would scorch the clothing; it would leave a . . . make sort of a burnt spot on it .

Demonstration, Repetition, Illustration and Inferior Explanation Category

## Illustration

Well you can scorch a pan with something .

## Inferior Explanation

Well to change in color or something .

Error Category

## Wrong definition

Well you can scorch something out on your paper; just like scribble something out .

## Clang association

To yell at .

## LECTURE

Synonym Category

## Synonym unmodified

Well, it's sort of a talk about something. To give a talk. When you give a speech .

## Synonym modified by description

It's a talk containing facts and it's given by teachers or something .

Use, Description, and Use and Description Category

## Description

Like if somebody is teaching you, he's lecturing .





Explanation Category

Explanation

When he tells you a tale with a lesson to it .

Demonstration, Repetition, Illustration and Inferior Explanation Category

Illustration

It's a different kind of a meeting .  
When someone does something bad they give a lecture on it .

Inferior explanation

It's a place where you go and talk about something .

Error Category

Wrong definition

Stay after school because you did something wrong .

Clang association

When somebody votes for somebody .

## SKILL

Synonym Category

Synonym unmodified

Ability .

Synonym qualified as to degree

The ability to do something well .

Explanation Category

Explanation

When you are good at something .  
If you're skillful at something ,  
you can do it very well (like a specialist) .

Demonstration, Repetition, Illustration and Inferior Explanation Category

Illustration

Well, if you, like you're smart at something and a good baseball player and know how to play the game very well .



Error Category

Wrong definition

Be kind of brave like and do things  
that hardly any other people will  
do.

## BRUNETTE

Synonym Category

Synonym modified by description

A type of hair. I think it's  
brownish black color.

Explanation Category

Explanation

Well your hair, like, is brown.

Error Category

Wrong definition

A sort of a hair-do.

## MUZZLE

Synonym Category

Synonym unmodified

The nose of a dog.

Synonym modified by use

It's a thing people put over dogs'  
mouths to keep them from biting.

Use, Description, and Use and Description Category

Use

A dog wears it on his mouth so he  
won't bite you.

Use and description

It's leather or some kind of stuff or  
material and you put it over a bear,  
over their mouth, so they can't hurt  
you.



Error Category

Misinterpretation

Like if somebody had work to do  
and if he is all muzzled up, he  
doesn't know what to do.

Wrong definition

Part of your body.

Clang association

Confused. Someone he mumbles.

## HASTE

Synonym Category

Synonym unmodified

To hurry.

Synonym modified by description

To do quickly.

Explanation Category

Explanation

Well, when you try to hurry,  
you've got to be in haste.

Error Category

Misinterpretation

That you are mean and angry  
(hate).

Wrong definition

Tired

Clang association

It's something like a pudding.

## PECULIARITY

Synonym Category

Synonym unmodified

Out of the ordinary; odd.

Explanation Category

Explanation

Something funny about it.





Demonstration, Repetition, Illustration and Inferior Explanation Category

|                      |  |
|----------------------|--|
| Repetition           | It's quite peculiar .                        |
| Inferior explanation | You've never seen it before or heard of it . |

Error Category

|                  |                            |
|------------------|----------------------------|
| Wrong definition | You're sure of something . |
|------------------|----------------------------|

PRICELESS

Synonym Category

|                                 |                                  |
|---------------------------------|----------------------------------|
| Synonym unmodified              | Well it's valuable .             |
| Synonym modified by description | Very expensive . Very valuable . |

Explanation Category

|             |   |
|-------------|---|
| Explanation | When something is priceless you can't put a price on them . |
|-------------|---|

Demonstration, Repetition, Illustration and Inferior Explanation Category

|                      |             |
|----------------------|-------------|
| Inferior explanation | High cost . |
|----------------------|-------------|

Error Category

|                  |                                    |
|------------------|------------------------------------|
| Wrong definition | It hasn't got any worth or value . |
|------------------|------------------------------------|

REGARD

Synonym Category

|                         |  |
|-------------------------|--|
| Synonym unmodified      | Respect .                                    |
| Synonym modified by use | Take into your thoughts and think about it . |



Explanation CategoryExplanation

You think about it . When you regard something as bad you don't think it's any good .

Error CategoryMisinterpretation

What to do with something .

Wrong definition

To stay away from them as much as you can .

Clang Association

To guard something .

Repetition without explanation

To regard a person .

## TOLERATE

Synonym CategorySynonym unmodified

To put up with . Endure .

Explanation CategoryExplanation

You can stand for it .

Demonstration , Repetition , Illustration and Inferior Explanation CategoryInferior explanation

Well when somebody is very unpolite and all you have to kind of like give in with him .

Error CategoryWrong definition

To get mad at . If you bother somebody .

Clang association

It means you're tall .





## DISPROPORTIONATE

Synonym Category

Synonym unmodified

Out of shape . Not in proportion .

Explanation Category

Explanation

Something out of shape or out of position . One that's not in proportion .

Error Category

Wrong definition

When you are not very good but you try for it .

## LOTUS

Synonym Category

Synonym unmodified

It's a kind of flower . A plant .

Synonym modified by description

It's a Chinese flower that grows in water .

Error Category

Misinterpretation

A type of grasshopper that flies in large swarms .

Clang association

A grasshopper (locust) . It could be you are hanging around all the time (loafing) .

## SHREWD

Synonym Category

Synonym unmodified

Kind of sly . Smart . Cunning .

Synonym modified by description

Very clever or keen; sharp .



Explanation Category

Explanation

If you're a shrewd businessman,  
you do everything carefully.  
you don't take chances.

Error Category

Misinterpretation

You're mean and you turn your  
nose at everybody.

Wrong definition

Shy.

Clang association

Well, sort of rude.

## MOSAIC

Synonym Category

Synonym modified by description

It's an art sometimes where you  
lay tiles or little bits of tiles  
to produce a picture.

Use, Description, and Use and Description Category

Description

It's different colors of things  
put together.

Explanation Category

Explanation

Where you get um quite a few  
little pieces and you just put them  
together like a mosaic picture.

Error Category

Wrong definition

It's something like a museum.

## STAVE

Synonym Category

Synonym unmodified

Sort of a stick or a pole.



Synonym modified by description

It's a long stout pole sometimes used by scouts .

Error Category

Wrong definition

I think it's something that you can cut down grass with .

Clang association

He was a stave (brave) man .





## APPENDIX D

### RECOGNITION VOCABULARY TEST



Name \_\_\_\_\_ Age \_\_\_\_\_ Grade \_\_\_\_\_

Below you will see a word in capitals. Five people were asked what the word means. The five choices after the word are what the five people said. You are to decide which of the answers is best. Sometimes more than one choice will tell correctly what the word means, but you should choose only the one that you think is best. Write its letter at the end of the line. The example shows how to do it.

|     |   |                |
|-----|---|----------------|
| DOG | A. you drink it<br>B. it's a small animal<br>C. something wooden<br>D. a small house<br>E. it means a pet dog . . . . . | _____ <b>B</b> |
|-----|---|----------------|

|          |   |       |
|----------|---|-------|
| 1 ORANGE | A. it's a fruit<br>B. you eat it<br>C. it's round and yellow<br>D. orange - like in orange juice<br>E. a kind of monkey . . . . . | _____ |
|----------|---|-------|

|             |   |       |
|-------------|---|-------|
| 2. ENVELOPE | A. it's a letter envelope<br>B. a wild animal<br>C. a container for a letter<br>D. white folded paper<br>E. something to mail things in . . . . . | _____ |
|-------------|---|-------|





3. PUDDLE
- A. muddy water
  - B. like a small pool
  - C. you step in it and get wet
  - D. it's a riddle
  - E. it's a puddle that rain makes . . . . \_\_\_\_\_
4. GOWN
- A. you wear it
  - B. something like an elf
  - C. silk material
  - D. an evening gown for a ball
  - E. a lady's dress . . . . . \_\_\_\_\_
5. EYELASH
- A. it's a hair on the eyelid
  - B. it protects your eye
  - C. an eye disease
  - D. a horse whip
  - E. you blink with it . . . . . \_\_\_\_\_
6. MUZZLE
- A. black leather
  - B. something to keep an animal from biting
  - C. like a leash
  - D. covering for an animal's mouth
  - E. it's a fight - a quarrel . . . . . \_\_\_\_\_



7. LECTURE
- A. it's a game
  - B. a long composition
  - C. when a man talks
  - D. it's a speech
  - E. a stage platform .. ..... \_\_\_\_\_
8. SKILL
- A. performance
  - B. something to cook with
  - C. what you do very well
  - D. acrobatic skill
  - E. an ability ..... \_\_\_\_\_
9. PECULIARITY
- A. a queer person
  - B. when something odd occurs
  - C. unusualness
  - D. falsehood
  - E. it happens very rarely ..... \_\_\_\_\_
10. STAVE
- A. an oven
  - B. it's like a staff
  - C. you lean on it when walking
  - D. it's wooden
  - E. something you carry ..... \_\_\_\_\_



## APPENDIX E

## MENTAL ABILITY TEST





OTIS SELF-ADMINISTERING TESTS OF MENTAL ABILITY

By ARTHUR S. OTIS, PH.D.

Formerly Development Specialist with Advisory Board, General Staff, United States War Department

INTERMEDIATE EXAMINATION: FORM A  
For Grades 4-9

20 Score.....

Read this page. Do what it tells you to do.

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving your name, age, birthday, etc. Write plainly.

Name.....Age last birthday.....years  
First name, initial, and last name  
Birthday.....Teacher.....Date..... 19....  
Month Day  
Grade.....School.....City.....

This is a test to see how well you can think. It contains questions of different kinds. Here is a sample question already answered correctly. Notice how the question is answered:

Sample: Which one of the five words below tells what an apple is?  
1 flower, 2 tree, 3 vegetable, 4 fruit, 5 animal..... ( 4 )

The right answer, of course, is "fruit"; so the word "fruit" is underlined. And the word "fruit" is No. 4; so a figure 4 is placed in the parentheses at the end of the dotted line. This is the way you are to answer the questions.  
Try this sample question yourself. Do not write the answer; just draw a line under it and then put its number in the parentheses:

Sample: Which one of the five things below is round?  
1 a book, 2 a brick, 3 a ball, 4 a house, 5 a box.....( )

The answer, of course, is "a ball"; so you should have drawn a line under the words "a ball" and put a figure 3 in the parentheses. Try this one:

Sample: A foot is to a man and a paw is to a cat the same as a hoof is to a — what?  
1 dog, 2 horse, 3 shoe, 4 blacksmith, 5 saddle.....( )

The answer, of course, is "horse"; so you should have drawn a line under the word "horse" and put a figure 2 in the parentheses. Try this one:

Sample: At four cents each, how many cents will 6 pencils cost?.....( )

The answer, of course, is 24, and there is nothing to underline; so just put the 24 in the parentheses.  
If the answer to any question is a number or a letter, put the number or letter in the parentheses without underlining anything. Make all letters like printed capitals.  
The test contains 75 questions. You are not expected to be able to answer all of them, but do the best you can. You will be allowed half an hour after the examiner tells you to begin. Try to get as many right as possible. Be careful not to go so fast that you make mistakes. Do not spend too much time on any one question. No questions about the test will be answered by the examiner after the test begins. Lay your pencil down.

Do not turn this page until you are told to begin.



## EXAMINATION BEGINS HERE.

1. Which one of the five things below does not belong with the others?  
1 potato, 2 turnip, 3 carrot, 4 stone, 5 onion..... (Do not write on these dotted lines.) ( )
2. Which one of the five words below tells best what a saw is?  
1 something, 2 tool, 3 furniture, 4 wood, 5 machine..... ( )
3. Which one of the five words below means the opposite of west?  
1 north, 2 south, 3 east, 4 equator, 5 sunset..... ( )
4. A hat is to a head and a glove is to a hand the same as a shoe is to what?  
1 leather, 2 a foot, 3 a shoestring, 4 walk, 5 a toe..... ( )
5. A child who knows he is guilty of doing wrong should feel (?)  
1 bad, 2 sick, 3 better, 4 afraid, 5 ashamed..... ( )
6. Which one of the five things below is the smallest?  
1 twig, 2 limb, 3 bud, 4 tree, 5 branch..... ( )
7. Which one of the five things below is most like these three: cup, plate, saucer?  
1 fork, 2 table, 3 eat, 4 bowl, 5 spoon..... ( )
8. Which of the five words below means the opposite of strong?  
1 man, 2 weak, 3 small, 4 short, 5 thin..... ( )
9. A finger is to a hand the same as a toe is to what?  
1 foot, 2 toenail, 3 heel, 4 shoe, 5 knee..... ( )
10. Which word means the opposite of sorrow?  
1 sickness, 2 health, 3 good, 4 joy, 5 pride..... ( )
11. Which one of the ten numbers below is the smallest? (Tell by letter.)  
A 6084, B 5160, C 4342, D 6521, E 9703, F 4296, G 7475, H 2657, J 8839, K 3918 ( )
12. Which word means the opposite of pretty?  
1 good, 2 ugly, 3 bad, 4 crooked, 5 nice..... ( )
13. Do what this mixed-up sentence tells you to do.  
number Write the the in 5 parentheses..... ( )
14. If we believe some one has committed a crime, but we are not sure, we have a (?)  
1 fear, 2 suspicion, 3 wonder, 4 confidence, 5 doubtful..... ( )
15. A book is to an author as a statue is to (?)  
1 sculptor, 2 marble, 3 model, 4 magazine, 5 man..... ( )
16. Which is the most important reason that words in the dictionary are arranged alphabetically?  
1 That is the easiest way to arrange them. 2 It puts the shortest words first. 3 It enables us to find any word quickly. 4 It is merely a custom. 5 It makes the printing easier.. ( )
17. Which one of the five things below is most like these three: plum, apricot, apple?  
1 tree, 2 seed, 3 peach, 4 juice, 5 ripe..... ( )
18. At 4 cents each, how many pencils can be bought for 36 cents?..... ( )
19. If a person walking in a quiet place suddenly hears a loud sound, he is likely to be (?)  
1 stopped, 2 struck, 3 startled, 4 made deaf, 5 angered..... ( )
20. A boy is to a man as a (?) is to a sheep.  
1 wool, 2 lamb, 3 goat, 4 shepherd, 5 dog..... ( )
21. One number is wrong in the following series. What should that number be? (Just write the correct number in the parentheses.)  
1 6 2 6 3 6 4 6 5 6 7 6..... ( )
22. Which of the five things below is most like these three: horse, pigeon, cricket?  
1 stall, 2 saddle, 3 eat, 4 goat, 5 chirp..... ( )
23. If the words below were rearranged to make a good sentence, with what letter would the last word of the sentence begin? (Make the letter like a printed capital.)  
nuts from squirrels trees the gather. .... ( )
24. A man who betrays his country is called a (?)  
1 thief, 2 traitor, 3 enemy, 4 coward, 5 slacker..... ( )
25. Food is to the body as (?) is to an engine.  
1 wheels, 2 fuel, 3 smoke, 4 motion, 5 fire..... ( )
26. Which tells best just what a pitcher is?  
1 a vessel from which to pour liquid, 2 something to hold milk, 3 It has a handle, 4 It goes on the table, 5 It is easily broken..... ( )

*Do not stop. Go on with the next page.*





27. If George is older than Frank, and Frank is older than James, then George is (?) James.  
1 older than, 2 younger than, 3 just as old as, 4 (cannot say which)..... ( )
28. Count each 7 below that has a 5 next after it. Tell how many 7's you count.  
7 5 3 0 9 7 3 7 8 5 7 4 2 1 7 5 7 3 2 4 7 0 9 3 7 5 5 7 2 3 5 7 7 5 4 7..... ( )
29. If the words below were rearranged to make a good sentence, with what letter would the last word of the sentence begin? (Make the letter like a printed capital.)  
leather shoes usually made are of..... ( )
30. An electric light is to a candle as a motorcycle is to (?)  
1 bicycle, 2 automobile, 3 wheels, 4 speed, 5 police..... ( )
31. Which one of the words below would come first in the dictionary?  
1 march, 2 ocean, 3 horse, 4 paint, 5 elbow, 6 night, 7 flown..... ( )
32. The daughter of my mother's brother is my (?)  
1 sister, 2 niece, 3 cousin, 4 aunt, 5 granddaughter..... ( )
33. One number is wrong in the following series. What should that number be?  
3 4 5 4 3 4 5 4 3 5..... ( )
34. Which of the five things below is most like these three: boat, horse, train?  
1 sail, 2 row, 3 motorcycle, 4 move, 5 track..... ( )
35. If Paul is taller than Herbert and Paul is shorter than Robert, then Robert is (?) Herbert.  
1 taller than, 2 shorter than, 3 just as tall as, 4 (cannot say which)..... ( )
36. What is the most important reason that we use clocks?  
1 to wake us up in the morning, 2 to regulate our daily lives, 3 to help us catch trains,  
4 so that children will get to school on time, 5 They are ornamental..... ( )
37. A coin made by an individual and meant to look like one made by the government is called(?)  
1 duplicate, 2 counterfeit, 3 imitation, 4 forgery, 5 libel ..... ( )
38. A wire is to electricity as (?) is to gas.  
1 a flame, 2 a spark, 3 hot, 4 a pipe, 5 a stove..... ( )
39. If the following words were arranged in order, with what letter would the middle word begin?  
Yard Inch Mile Foot Rod ..... ( )
40. One number is wrong in the following series. What should that number be?  
5 10 15 20 25 29 35 40 45 50..... ( )
41. Which word means the opposite of truth?  
1 cheat, 2 rob, 3 liar, 4 ignorance, 5 falsehood ..... ( )
42. Order is to confusion as (?) is to war.  
1 guns, 2 peace, 3 powder, 4 thunder, 5 army..... ( )
43. In a foreign language, good food = Bano Naab  
good water = Heto Naab  
The word that means *good* begins with what letter?..... ( )
44. The feeling of a man for his children is usually (?)  
1 affection, 2 contempt, 3 joy, 4 pity, 5 reverence..... ( )
45. Which of the five things below is most like these three: stocking, flag, sail?  
1 shoe, 2 ship, 3 staff, 4 towel, 5 wash..... ( )
46. A book is to information as (?) is to money.  
1 paper, 2 dollars, 3 bank, 4 work, 5 gold..... ( )
47. If Harry is taller than William, and William is just as tall as Charles, then Charles is (?) Harry.  
1 taller than, 2 shorter than, 3 just as tall as, 4 (cannot say which)..... ( )
48. If the following words were arranged in order, with what letter would the middle word begin?  
Six Ten Two Eight Four ..... ( )
49. If the words below were rearranged to make a good sentence, with what letter would the third word of the sentence begin? (Make the letter like a printed capital.)  
men high the a wall built stone..... ( )
50. If the suffering of another makes us suffer also, we feel (?)  
1 worse, 2 harmony, 3 sympathy, 4 love, 5 repelled..... ( )
51. In a foreign language, grass = Moki  
green grass = Moki Laap  
The word that means *green* begins with what letter?..... ( )

*Do not stop. Go on with the next page.*





52. If a man has walked west from his home 9 blocks and then walked east 4 blocks, how many blocks is he from his home?..... ( )
53. A pitcher is to milk as (?) is to flowers.  
1 stem, 2 leaves, 3 water, 4 vase, 5 roots..... ( )
54. Do what this mixed-up sentence tells you to do.  
sum three Write two the four and of..... ( )
55. There is a saying, "Don't count your chickens before they are hatched." This means (?)  
1 Don't hurry. 2 Don't be too sure of the future. 3 Haste makes waste. 4 Don't gamble ..... ( )
56. Which statement tells best just what a fork is?  
1 a thing to carry food to the mouth, 2 It goes with a knife, 3 an instrument with prongs at the end, 4 It goes on the table, 5 It is made of silver..... ( )
57. Wood is to a table as (?) is to a knife.  
1 cutting, 2 chair, 3 fork, 4 steel, 5 handle..... ( )
58. Do what this mixed-up sentence tells you to do.  
sentence the letter Write last this in..... ( )
59. Which one of the words below would come last in the dictionary?  
1 alike, 2 admit, 3 amount, 4 across, 5 after, 6 amuse, 7 adult, 8 affect ( )
60. There is a saying, "He that scatters thorns, let him go barefoot." This means (?)  
1 Let him who causes others discomforts bear them himself also. 2 Going barefoot toughens the feet. 3 People should pick up what they scatter. 4 Don't scatter things around..... ( )
61. If the following words were arranged in order, with what letter would the middle word begin?  
Plaster Frame Wallpaper Lath Foundation..... ( )
62. In a foreign language,  
many boys = Boka Hepo  
many girls = Marti Hepo  
many boys and girls = Boka Ello Marti Hepo  
The word that means *and* begins with what letter?..... ( )
63. A statement which expresses just the opposite of that which another statement expresses is said to be a (?)  
1 lie, 2 contradiction, 3 falsehood, 4 correction, 5 explanation..... ( )
64. There is a saying, "Don't look a gift horse in the mouth." This means (?)  
1 It is not safe to look into the mouth of a horse. 2 Although you question the value of a gift, accept it graciously. 3 Don't accept a horse as a gift. 4 You cannot judge the age of a gift horse by his teeth..... ( )
65. Which one of the words below would come last in the dictionary?  
1 hedge, 2 glory, 3 label, 4 green, 5 linen, 6 knife, 7 honor..... ( )
66. Which statement tells best just what a watch is?  
1 It ticks, 2 something to tell time, 3 a small, round object with a chain, 4 a vest-pocket-sized time-keeping instrument, 5 something with a face and hands..... ( )
67. Ice is to water as water is to what?  
1 land, 2 steam, 3 cold, 4 river, 5 thirst..... ( )
68. Which statement tells best just what a window is?  
1 something to see through, 2 a glass door, 3 a frame with a glass in it, 4 a glass opening in the wall of a house, 5 a piece of glass surrounded by wood..... ( )
69. Which of the five words below is most like these three: large, red, good?  
1 heavy, 2 size, 3 color, 4 apple, 5 very..... ( )
70. Write the letter that follows the letter that comes next after M in the alphabet ..... ( )
71. One number is wrong in the following series. What should that number be?  
1 2 4 8 16 24 64 ..... ( )
72. An uncle is to an aunt as a son is to a (?)  
1 brother, 2 daughter, 3 sister, 4 father, 5 girl..... ( )
73. If I have a large box with 3 small boxes in it and 4 very small boxes in each of the small boxes, how many boxes are there in all?..... ( )
74. One number is wrong in the following series. What should that number be?  
1 2 4 5 7 8 10 11 12 14..... ( )
75. There is a saying, "Don't ride a free horse to death." This means (?)  
1 Don't be cruel. 2 Don't abuse a privilege. 3 Don't accept gifts. 4 Don't be reckless. ( )  
*If you finish before the time is up, go back and make sure that every answer is right.*





**B29895**